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SOUTH FRONT OF MARKET HOUSE

MARKET HOUSE OF KNOXVILLE, TENN.

New Building Five Hundred Feet Long — Meat, Vegetable and Other Markets — Details of Arrangement —
Drainage and Cleaning — Refrigeration and Heating — Auditorium and Exhibit Hall

By JESSE S. COTTRELL

WHEN Knoxville, Tenn., was laid out in 1787, by James White, the founder of Knoxville, he donated an acre of land in the center of the city for a market place, with the provision that the country people should never be deprived of the privilege of selling their produce there; further, that in the center there should be a market house, the length to be regulated by the growth of that particular section as to buildings. For a half of a century an old building stood on the lot, which was later

doubled in size; and as this had again become inadequate, in 1897, when S. G. Heiskell, the present mayor, was elected, the first thing he did was to recommend a new market house building. A tax was levied, and an appropriation was made of \$32,000 for the building, and Baumann Bros. prepared plans which were adopted.

At the north end of the square was the three-story city hall, with the frontage at the north end of forty-five feet and a

depth of about 100 feet, the ground floor being used as a fire station. The old market building was razed, the firemen were removed from the city hall building, and on the site a handsome three-story building, of only two floors, however, went up. The building extends north and south something like 500 feet, and is forty-one feet wide.

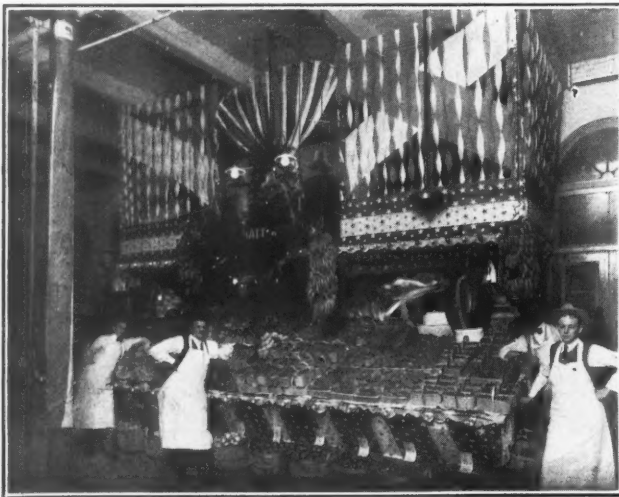
The first floor, which is used as the market place, comprises fifty-five booths or stalls, fifty-four of which are rented at a rate of \$1.10 per front foot per month, yielding a monthly revenue of \$715. One stall in the city hall section has been utilized as the site for a safe, three stories in height.

The south end of the building stands at the mouth of Prince street, a wide thoroughfare that opens into the square, and presents an imposing appearance of artistic design. It is forty-one feet wide, three stories in height, with an arch of gray Knox marble at the opening leading into a vestibule. Above the first floor rise columns with Corinthian capitals, trimmed for the most part with Knox county marble. At the west side of the entrance is a drinking fountain for man and beast.

On entering the vestibule, a stairway leading to the auditorium overhead is noted, following which there is a women's toilet at the left and a booth for florists at the right. A second vestibule leads into the main market, which is allotted to the butchers solely. One single and three double stalls are on each side, a single stall being fourteen feet in length, occupying a space of 14.1 feet from the wall to a ten-foot passage for pedestrians.

Aisles 3.6 feet wide, between the ends of successive stalls, lead to screened doors opening upon the square. There is a spacious window over each stall.

This arrangement obtains until the second, or vegetable, section is reached. Here there is a large arcade, or passageway, with stairways that lead to the large auditorium over the meat section, and also to the exhibit room over the vegetable section.



PRIZE VEGETABLE STALL, KNOXVILLE MARKET HOUSE

Under this there is a men's toilet. The vegetable section comprises, on each side, seven double stalls, each twenty feet long, or fourteen single stalls of ten feet each. The same plan also prevails under the city hall section.

Underneath the concrete floor is a twenty-four-inch sewer pipe, which drains the building the entire length. This concrete floor slopes from each side toward the center, and at points about twenty feet apart are large screened grating outlets that lead to the sewer. This concrete is of the very highest grade. In order to avoid unhealthful effects from standing on the concrete floor, the market men keep the floor behind the counters covered with either sawdust or small platforms. It has been proposed to lay these spaces with asphalt, but it has been found that such was not adapted to the market house, owing to the plan of heating. The counters are of solid oak,

with natural finish, standing on mortised pedestals one foot above the floor. By this arrangement it is easy to sweep and flush under the counters. At night, after the close of business hours, the market house is flushed and thoroughly washed, thus cleansing it completely. At each and every door the city keeps a small metallic refuse can, generally hoisted on wheels, and during the day the market men throw refuse matter into these; sanitary carts frequently during the day carting away the contents of the cans. This plan of sanitation has been found to be both satisfactory and effectual.

Every butcher or vendor of perishable goods has a large refrigerator in his stall, which he himself must furnish. They are well constructed, so as to suit the appointment of the stall and give satisfaction. Each counter is covered with Knox county marble, either the gray Knox or the Knox county or Hawkins county variegated grades. It is now proposed to build a basement under the market house, and there install an ice and refrigerating plant and warerooms; but as the truck growers of this section almost wholly supply the vegetables and the local abattoirs the meats, the necessity is not now imperative even with the fish dealers, who have provided ample refrigerators under the counters. The ice used is furnished by local concerns at a very low figure.

The heating of the market house is very simple, being from a furnace located under the arcade section, and by means of pipes which ramify through the building. Owing to the temperate climate of this section, the system distributes the heat in such a manner that the inmates of the market house are kept comfortable, but the heat does not become sufficient to affect the vegetables and meats. The building is lighted by electricity furnished free by the city, as is the water. In front of every stall is a neat metallic sink for washing goods, and drop lights depend from the ceiling, several for each stall. A system of fans has been installed, propelled by electricity, which keep off flies and insects. Enough room is afforded for basket peddlers to stand along the center of the walkway and dispose of their produce, such as butter and eggs, and they are charged no rent or license for this. The vendors from the wagons also are immune from tax or license under the provision of James White, who gave the site.

In this market is sold everything that goes upon the table, from the pickled pigs' feet or old-fashioned lye hominy, made by the country women from the mountains, to the most choice steak, roast or confectioner's cake.

The walls are twenty feet high, the place is airy and spacious, is well kept and inviting. It is patrolled throughout the day by a market master and his assistant, who assist everyone in keeping the place clean.

Over the vegetable section, or the portion south of the arcade, is the market hall or auditorium, with a gallery and a total seating capacity of 1,500 to 2,000. It is finished in hard wood, is well lighted and is now being used on Sundays by the Deaderick avenue Baptist church Sunday school, the largest in the State, which recently lost its church edifice by fire.

North of the auditorium, and adjoining the city hall section, is the city exhibit hall of the same size as the auditorium. It was for a long time used as an armory for the State militia, but is now used for the annual poultry shows of the East Tennessee Poultry association and for exhibits of farm and mineral products. It is also the place where the target practice of the police department is held. It is convenient for any such like purpose.

It is estimated that to duplicate the present market house to-day, with increased prices of material and labor, would cost \$75,000. It is beyond all doubt one of the handsomest in the South. It is also a paying investment all around, as the revenues are ample and satisfactory to the city, and the demand for stalls or booths is so great that applications for space are carried month after month, and now a huckster or butcher who desires to give up his business can sell his privileges at an enormously high figure.

SULPHUR-SAND JOINTS IN LOUISVILLE

For Securing Tight Sewer Pipe Joints—Experiments with Various Mixtures—Temperature of Mixture Necessary—Pouring the Joints

IN the building of certain small sanitary sewers as part of the new sewerage system of Louisville, Ky., it was important to have the full capacity available, and therefore to exclude ground water and leakage from storm drains which were laid in the same trench. Sulphur-sand joints were used on the sanitary sewer, and in the working out of the best way of using local materials, and the best manipulation of piping, some interesting results were recorded. These are presented in the report to the Sewerage Commission by J. B. F. Breed, chief engineer, of Louisville, and the consulting engineer, Harrison P. Eddy, of Boston.

The sulphur-sand method was new to Louisville, and in consequence much experimenting with local materials was done before the best material could be determined upon. In the preliminary stages of this work a mixture of sulphur and sand in equal parts was tried, a very fine moulding sand from a local pit being used. From the first this mixture gave trouble, several radial cracks which appeared on each joint as soon as the joint was poured indicating excessive shrinkage of the mixture. It was also found that about twelve hours after being poured the entire joint loosened, permitting the easy separation of pipes. All materials and methods used were then subjected to careful examination. The sand used contained a considerable percentage of clay, and was therefore washed, by which process a large portion of the clay was removed. Using the washed sand and the utmost care in making joints gave no better results than before. Finally, sand of about the same grade as that already in use, but with less clay in it, was obtained from the same local pit. To ascertain what sands were best adapted to this work, test joints were poured as follows:

Using (1) moulding sand containing little clay, ten parts, to ten parts sulphur. (2) Ohio River sand, screened through No. 20 sieve, ten parts to ten parts sulphur. (3) Moulding sand six parts to four parts screened Ohio River sand, and ten parts sulphur.

The last named mixture gave the best results, there being in it as much Ohio River sand (screened through No. 20 sieve) as could be carried in suspension in the fluid mixture. Further experiments were made on other pieces of construction by varying the proportions of sand and sulphur, and also the proportion of the two grades of sand. These experiments confirmed the results of the former tests, i. e., that with local materials the mixture composed of six parts moulding sand, four parts Ohio River sand screened through No. 20 sieve and ten parts sulphur gave best results. With this mixture the loosening of the joints entirely disappeared, radial checks occurred only very rarely, and these cracks appeared not to allow ground water to enter the sewer.

In making these joints three or four lengths of pipe were placed in a wooden cradle resting on the surface of the ground, carefully fitted together, lined up and caulked with jute, the pipe at one end of the cradle being so braced that the pipes could be forced firmly together by wedging, before the joints were made. "Pipe jointers," made of square, braided asbestos, were then so placed around the pipes at each joint and fastened as to prevent the liquid jointing material from running out of the bells. After these jointers were secured in place the joints were poured with the mixture of sulphur and sand, which had been melted and brought to the proper degree of fluidity.

Care is required to keep the temperature of the sulphur-sand mixture at the proper point, because while the mixture begins to melt at a temperature of about 200 degrees Fahrenheit and becomes thin and suitable for pouring at about 260 degrees, if the temperature is allowed to rise more than 25 degrees to 40 degrees higher, it again becomes thick and plastic, in which

condition it cannot be poured. These facts are shown clearly by the following tabulation:

Physical Condition of Sulphur and Sulphur-Sand Mixture at Different Temperatures

Condition	Temperature	
	Sulphur	Sulphur-Sand
Began to melt.....	176° F.	201° F.
Fluid	212° F.	261° F.
Slightly viscid	234° F.	302° F.
Would not pour.....	248° F.	315° F.

It is interesting to note to what an extent the admixture of sand with sulphur affects the temperatures at which it changes its condition. After pouring, the mixture hardens very rapidly, so that in an interval of time of perhaps one minute the asbestos jointers can be removed. While the jointing material is still warm it is coated with hot tar pitch as a further safeguard against leakage. Within five minutes after the joints are poured the entire length of three or four pipes, as the case may be, can be removed from the cradle and placed in position in the trench. Although the joints attain an almost incredible strength in this short interval of time, care must be exercised in moving the pipe so that the joints and bells of the pipe shall not be unnecessarily strained. The joints between sections of pipes were poured in the trench. When water was encountered in the work, care was taken to hold its level below the pipe joints. Otherwise, the liquid mixture skipped the portion of the joints submerged in water.

This method of jointing pipe aids materially in the inspection of the work, since perhaps three-fourths of the joints are made on the ground surface, where they are readily accessible. The large proportion of the work of pipe jointing which can be performed on the surface of the ground, regardless of the conditions in the trench, has, in many instances, tended toward better progress and economical work.

Experience in the Louisville work proved that a total length of eight or nine feet of pipe on the cradle was most satisfactory. In other words, when two-foot lengths of pipe were used four pieces of pipe, and when in three-foot lengths only three pieces could be advantageously jointed at one operation. After a fair trial of makeshift jointers, it was decided that an asbestos jointer, with spring clamp, facilitated the work and gave best results. A substantially built cradle, with the templets holding the pipes accurately placed as to line, was found to be both necessary and economical. Coal heaters, copper kettles and generous sized ladles all tended to better work and progress.

Good briquettes made of sulphur and sand of the proportions used on the work showed a tensile strength of from 520 to 640 pounds per square inch.

STREET NAMES ON CURBS

A METHOD of placing street names on curbs which is novel to us has been adopted by the city of Pasadena, Cal., and at our request Mr. S. J. Van Ornum, the city engineer, has sent us the following information concerning the same.

Formerly there was a great deal of complaint from delivery men and visitors, and also from the police, that it was almost impossible to locate a given house number, as these were generally placed in an inconspicuous place. Recently the mayor has been authorized to have the names of the streets and the numbers of the houses painted on the curbs throughout the city, and he has employed two painters to do this work. The names of the streets are placed on the face of the curb close to the street intersection and consist of black letters 1½ inches high on a white background, painted by means of a stencil. The house numbers are painted on the top of the curb directly in front of each house, being black on a white ground, similar to the street names. The white paint, of oil and white lead, is first applied; and after this is thoroughly dry the black letters are stenciled on, the paint used consisting of one-half bone black and one-half lamp black mixed with oil. The approximate cost of this work is five cents per each house number and seven cents for each street name.

METER TESTING IN NEW ORLEANS

Twelve Thousand in Three Months—Device for Testing Ten Meters at Once—Test Stopped Automatically—Testing Large Meters

WITH the introduction of the new municipal water supply into New Orleans it was decided to meter all services at the time of their connection with the mains. As a large percentage of the citizens delayed making connections until the system was ready for use, and then wished this done immediately, the several gangs employed on house connections have been required to keep continuously at work for several months past. In the three months of September, October and November, the water board installed nearly 12,000 meters of all sizes from $\frac{5}{8}$ inch to 8 inches. They had determined to test every meter before placing it in service, and to their credit did not allow even this demand for haste to cause them to neglect this. Consequently the mechanical engineer, Mr. A. B. Wood, was called upon to test this number of meters at the meter testing station at the main water works pumping station.

The board purchased two standard meter testers and intended to do all the testing of small meters on these machines. Large meters were connected up with flanges requiring special pipe work for almost every size and make of meter.

It at once became evident that it would be impossible to make the large number of tests necessary in the time allowed with any device which they found upon the market; and in this emergency the board had built machines from special designs, the credit for designing which, we believe, belongs to Mr. Wood. These included one hydraulic meter tester for testing meters four inches and larger, and two machines for $\frac{5}{8}$, $\frac{3}{4}$ and 1-inch meters, each of which is capable of testing ten at once. The particular advantage and novelty in this latter machine were in the number of meters which could be tested at once, and the rapidity with which the meters could be inserted in and removed from the machine.

The illustration shows an isometric view of a machine for testing small meters. At one end of the bench is placed an hydraulic cylinder, the piston rod from which is also the supply pipe bringing water to the meters. Attached to each side of the frame which carries the cylinder and extending the full length of the table is a rod, the two carrying at their further end a fixed cross bar, and nine moveable cross bars spanning the space between these rods are free to move back and forward along the same. Each of these cross bars car-

ries what is equivalent to a short length of pipe at its center, in either end of which pipe is a larger opening an inch or two deep ending in a shoulder against which the ends of the meter inlet and outlet rest, a rubber or leather washer being placed between these and the shoulders in order to make a watertight joint. From the fixed cross arm at the end a short length of pipe is carried to the weighing tank, where it discharges into the latter the water which has passed through the ten meters in succession.

In use the loose cross arms are pulled back toward the cylinder and the meters are inserted one after the other, a cross arm being slid forward after each meter is placed to hold it in position. When the tenth meter is in position the pipe forming the piston rod is moved forward against the inlet end of this meter by admitting water slowly into the cylinder behind the piston. The pressure of this water produces sufficient pressure to make the joints watertight. The valve in the piston rod pipe is then opened, admitting water to the meters. The area of the piston is sufficient to sustain enough pressure on the piston rod to keep the joint between meters and cross arm shoulders perfectly watertight, but is so proportioned to the pressure in the water main as not to distort or in any wise strain the meters. As soon as the test is completed the water supply is shut off, and the waste pipe opened and the piston pipe and cross bars pulled back so as to release in succession the several meters.

For testing large meters a similar method of clamping the meter in place is employed, although provision is made for testing but one meter at a time. The photograph shows a 6-inch meter with by-pass being tested in one of these machines, the meter being supported by differential block and chain.

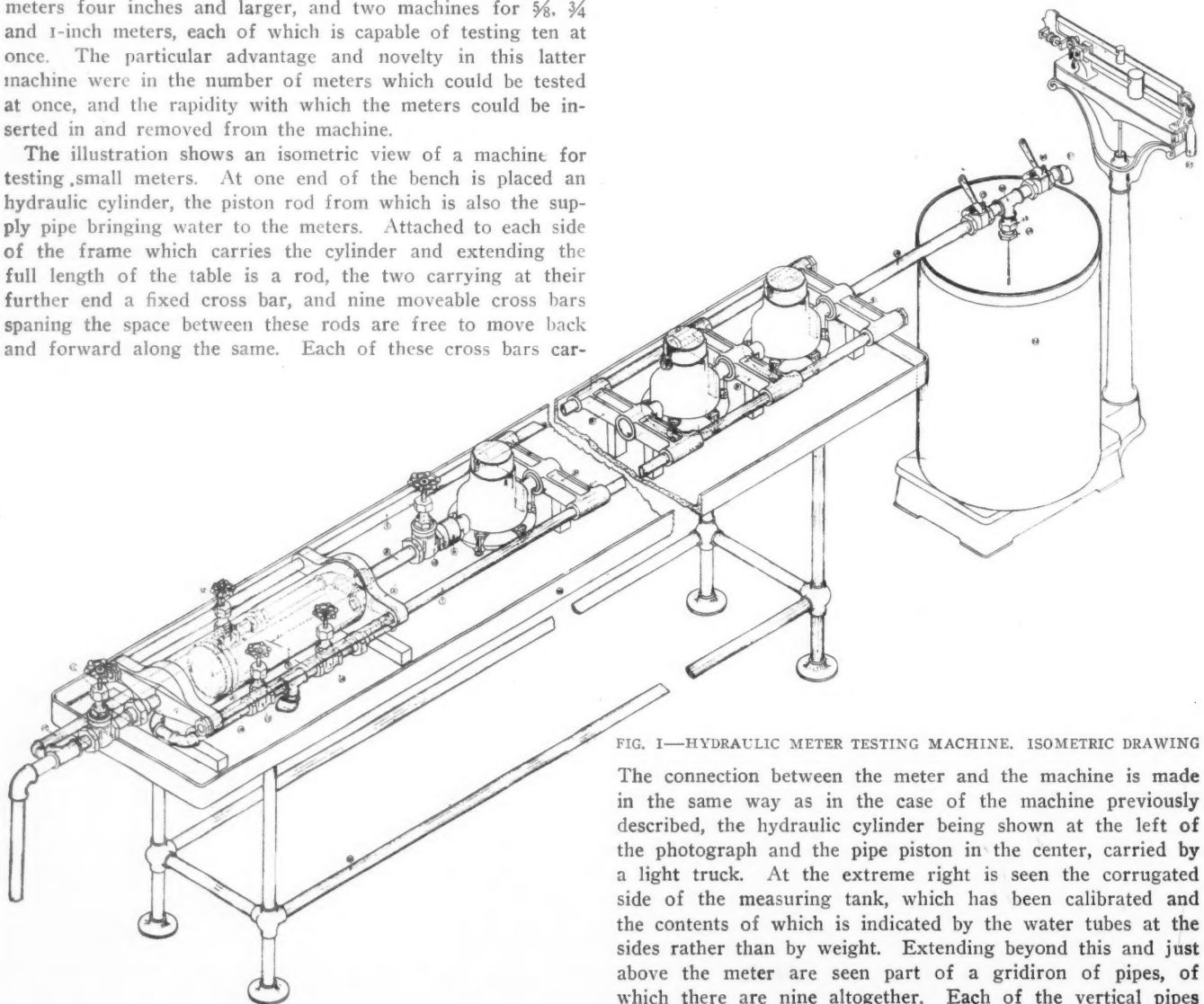


FIG. 1—HYDRAULIC METER TESTING MACHINE. ISOMETRIC DRAWING

The connection between the meter and the machine is made in the same way as in the case of the machine previously described, the hydraulic cylinder being shown at the left of the photograph and the pipe piston in the center, carried by a light truck. At the extreme right is seen the corrugated side of the measuring tank, which has been calibrated and the contents of which is indicated by the water tubes at the sides rather than by weight. Extending beyond this and just above the meter are seen part of a gridiron of pipes, of which there are nine altogether. Each of the vertical pipes

in this gridiron carries a valve and immediately above this a union, in which union is inserted an orifice. By opening one of these valves the water from the meter is required to pass through the orifice in the same pipe, and in this way the amount of water passing through the meter is regulated. These orifices vary in size from $\frac{1}{4}$ inch to 4 inches, thus allowing the greatest range of variations in flow.

Another improvement for which Mr. Wood deserves the credit is an electrical attachment to the valve at the outlet end

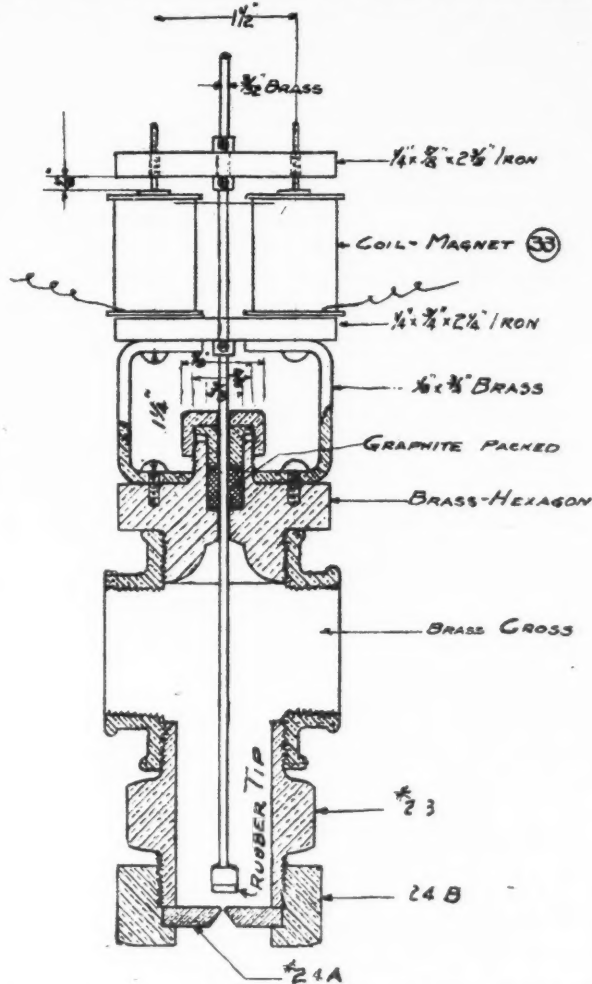


FIG. 2—DETAIL OF ELECTRICALLY-OPERATED VALVE, HALF SIZE

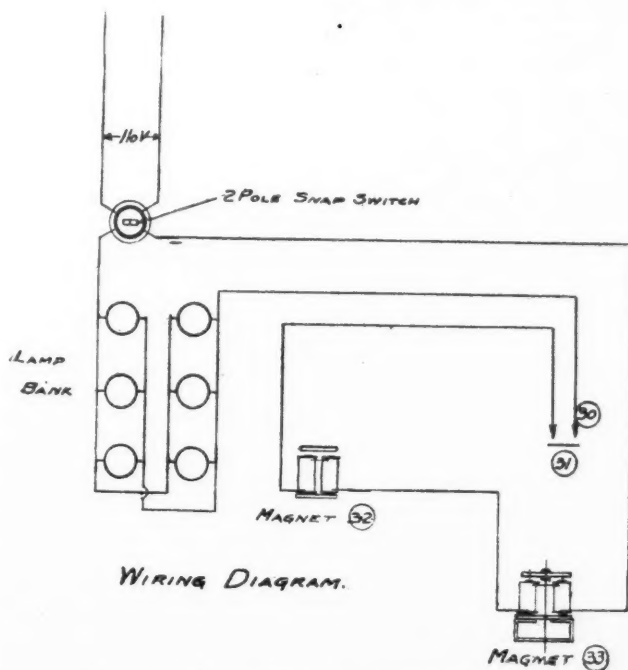


FIG. 3—WIRING DIAGRAM OF AUTOMATIC SHUT-OFF

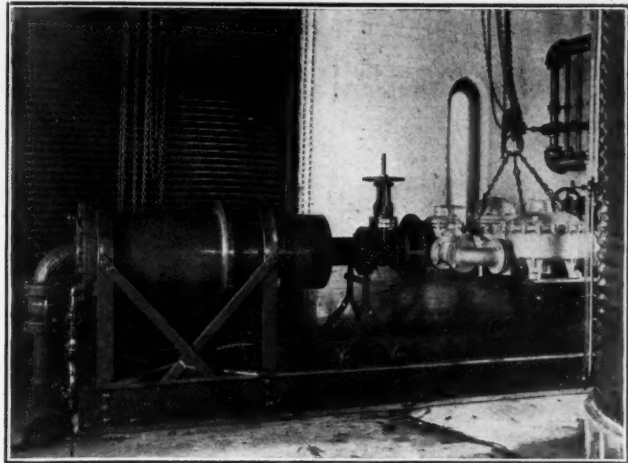


FIG. 4—TESTING 6-INCH METER, NEW ORLEANS WATER WORKS

of the pipe leading from the ten-meter machine to the weighing tank, by which the discharge is immediately shut off when the quantity in the weighing tank has reached a predetermined amount.

The main reason for designing and employing this was that, in testing meters on small streams of about 10 gallons an hour, the continual attention of an attendant was required for an hour or more; or, if he undertook other work in the meantime, he was likely to be otherwise engaged or to have forgotten this test when the desired quantity had passed through the meter. The device consists of a connection on the scale beam which closes the circuit on a small magnet when the weight in the barrel causes the scale beam to rise. This magnet, which is shown at the top of Fig. 2, operates a special valve to close off the discharge into the tank; this valve being simply a small rubber tip carried by a rod which, acting with the pressure, closes the orifice through which the

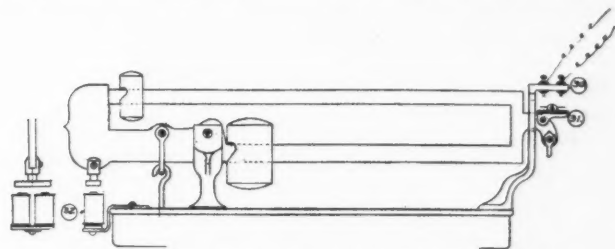


FIG. 5—AUTOMATIC CUT-OFF RIG ON SCALE BEAM

water is discharged. There is also a small magnet which holds the scale beam against the contact to avoid arcing. In the same circuit are arc lamps, which are lighted when the scale beam rises and closes the circuit, thus calling the attention of the attendant to the fact that the discharge has been cut off and the experiment completed.

Upon the visit of the writer to the New Orleans testing laboratory all three of these appliances were being used in regular routine work and there was no indication that any trouble was being at any time experienced through their failure to operate properly.

SLAG ROADS IN YOUNGSTOWN

THE Carnegie Steel Company has been experimenting with roads built of slag, of which material the company has enormous quantities on hand at its several furnaces. Last summer the company built an experimental road in seven sections, each constructed with a somewhat different mixture, but all using slag. A few weeks ago this experimental road was examined by Mr. V. M. Pierce, acting director of the National Good Roads Association, and other officials and interested parties. The winter's use is reported to have left this road in better condition than the ordinary macadam; two sections in which mixed slag and tar binder was used being in especially good condition.

MILWAUKEE INCINERATING PLANT

**Final Test of This Important Plant—Guarantees Exceeded in Most Respects—Method of Making Test—
1.34 Pounds of Steam Per Pound of Refuse—Plant Accepted and in Regular Service**

On June 17 the incinerating plant which has been under construction for the city of Milwaukee for several months past was accepted by the Board of Public Works of that city. The plans and specifications for this plant were presented in the *MUNICIPAL JOURNAL AND ENGINEER* for Feb. 10, 1909, and a description of the plant, then nearing completion, was given in the issue of May 4, 1910.

It was provided in the specifications that each of the four units should be given an acceptance test under certain conditions which were set forth quite fully. Early in May it was decided to make a provisional test of the plant before May 15, the date of the expiration of the contract time; the purpose being to determine in general before such time the acceptability of the plant, and to enable it to be put in operation and the old plant to be shut down at the earliest possible date. This provisional test was made on May 10 and the new plant was put in full operation on May 12; since which date all of the garbage collected has been burned at the new plant, and the old plant has been put out of commission. The final tests were made on May 19 to June 1, being divided into three series: one on extreme summer refuse, one on extreme winter refuse and one on annual average refuse. (See specifications for description of what is meant by these terms.) During each of these tests three units of the plant were being operated in handling the regular garbage collection of the city, one unit at a time being operated for test purposes.

The general method of making the tests and the results are described herewith. The required amount of refuse was weighed out and placed in the two outer hoppers of the unit under test, while the unit was being operated in regular service by means of the middle hopper. The weights placed in these two hoppers were those which the specifications required should be consumed during the eight hours of the test. As the materials for the test had to be taken from the regular collection, it was not always possible to obtain the exact proportions specified, but the proportions and total quantities were in reasonably close agreement with the requirements. When this material so mixed was ready the test was begun, the material being supplied from the two outside hoppers instead of from the middle hopper. The test was then continued until all of the material in the outside hoppers had been consumed.

In order to make an exact study of the incinerator temperatures, drafts, etc., these were measured by instruments specially adapted for that purpose. The temperatures in the combustion chamber were measured by a Bristol electric pyrometer calibrated to read up to 2400 deg. Fahr.; this having first been checked by three pyrometers at the Semet-Solvay Company's plant. The points of the instrument were placed in the sight hole of the large combustion chamber door, extending about 3 feet in from the door. They did not extend into the hottest part of the combustion chamber, and consequently temperature records of this chamber are on the safe side. These points also were at a position where they were affected by the opening of the clinkering door during clinkering, and it was found that it took from three to ten minutes for the needle of the pyrometer to return to stable condition after closing the door. This pyrometer was read every 15 minutes.

The temperature at the base of the chimney was recorded on a mercury thermometer placed in the short flue leading from the boiler to the main flue, readings being taken every half hour. The temperature of the air leaving the air heater was read every half hour on a mercury thermometer placed in a mercury well in the air duct connecting the outlet of the air heater with the furnace ash pits.

The suction of the draft in the combustion chamber was read every half hour on a differential water glass, which was placed

at the end of the furnace and connected to a tube entering the furnace through a sight hole at the end thereof. This measured the suction over the outside grate of the furnace. The other draft pressures were read on regular U-tube water glasses calibrated to tenths of an inch, readings being taken every half hour.

The steam pressure was read every half hour on the boiler gauge and in addition charts were taken on a continuously recording gauge on the main steam line. Pressure gauges on the different boilers varied by as much as 10 pounds, but the cost test, in which the evaporation counted most, was made on the boiler whose gauge read lowest. The feed water was measured by a hot-water meter, calibrated for both hot and cold water. The temperature of the feed water was taken every half hour by a mercury thermometer set in a mercury well close to the meter, the thermometer standing continuously in the well during the test. The amount of water in the boiler was read on the water glass every half hour and, in computing the evaporation, corrections were made for variations to water level in the boiler. The steam used by the fan and feed pump was all passed through a St. John recording meter and the quantity was computed from the chart of this instrument based upon a calibration of the instrument at the factory.

Concerning the guarantee that no nuisance would be created during the ordinary operation of the plant, the report of the engineers is based upon an inspection of each of the three floors of the plant during operation. On the feeding and mixing floor, where the refuse is stored and fed into the charging chutes of the furnace, no nuisance was observed. Also on the clinkering floor, where the fires were stoked and clinkered, there was no nuisance. The clinker is removed from the plant by being dropped from the clinkering floor into cars which travel on a track through the basement. In the dropping of the clinker into the cars a great deal of dust was created which made it uncomfortable for workmen to remain near the cars at the time; although this dust settled to a large extent in a few minutes after dumping. This certainly can hardly be considered as a serious nuisance, as it is confined to the basement of the building itself; moreover, it does not seem necessary for the workmen to remain in this basement while the dumping is taking place. It is said, however, that by a proper mixing and feeding of the refuse and management of the fire, so that the ashes as introduced with the refuse may become thoroughly mixed with the garbage and thus be embedded in the clinker, this objection may be overcome.

It was also guaranteed that no odors, obnoxious gases, smoke or dirt would escape from the chimney of the building. This guarantee is said to have been very satisfactorily fulfilled, there being no odor, and the only discoloration escaping from the chimney being a white cloudy steam, at times colored slightly brown; and even this discoloration was caused by unskillful workmen operating furnaces which were not under test. No dust escaped at any time from the building.

It was also guaranteed that at no time during the normal operation of the plant would the temperature of the combustion chamber fall below 1,250 deg. Fahr. because of defects in design or construction, and that an average temperature of at least 1,500 would be maintained in the combustion chamber. The average and minimum temperatures in the several tests were as follows:

	Minimum temperature.	Average temperature.
Extreme summer refuse.....	1,267	1,607
Extreme winter refuse.....	1,240	1,668
Average annual refuse.....	1,267	1,664

It is seen from the above that the average temperature was well above the guaranteed and that the minimum temperature

also was well above the guarantee, except in one instance; and considering the fact, previously stated, that the pyrometer was not in the most favorable position, this was not considered as serious.

Observations of the character of the clinker, ash and dust were frequently made to ascertain whether the residual from the furnaces was "thoroughly burned, hard and free from organic matter." Analyses of the residual matter showed the clinker to contain 0.06 per cent of volatile matter, the ashpit ash 1.77 per cent and the grate ash 0.74 per cent.

Resident Engineer Greeley entered and inspected the interior of furnace No. 3 within 36 hours after shutting it down, which was considered to sufficiently demonstrate that it would "not be necessary to shut down any unit for more than 48 hours in order to thoroughly remove dust and ashes."

The Power Specialty Company had guaranteed that the furnaces would burn 60 pounds of refuse per square foot of grate area per hour. The actual amounts recorded during the three tests were 63 pounds of extreme summer refuse, 65 pounds of extreme winter refuse and 64 pounds of annual average refuse.

The contractors also guaranteed a rate of evaporation in the boilers from and at 212 deg. Fahr. of 1.1 pounds of steam per pound of average annual refuse consumed. An eight-hour evaporation test was made on May 31, the result of which showed an evaporation of 1.34 pounds of steam, or more than 20 per cent in excess of the guarantee.

The company also guaranteed a net revenue of 40.4 cents per ton of average annual refuse burned, the method of calculating this being defined in detail in the specifications. The revenue included the value of all steam generated figured at 4 cents per hundred pounds from and at 212 deg., and the cost included all labor and power required to operate the plant from the time the refuse had been dropped into the hoppers until it had been deposited as ash and clinker outside the buildings; the wages of labor, etc., also being given in the specifications.

During the 37 hours of test the labor required to operate the furnace consisted of one man shoveling on the feeding and mixing room floor and three men stoking and clinkering, one of these latter also tending the cinder car in the basement and pushing this to the outside of the building. One engineer tended the machinery operating the whole plant of four units, and one-fourth of his time was charged against the test. This gives the cost of labor as follows:

1 feeder, 37 hours, at 25 cents.....	\$9.25
3 firemen, 37 hours, at 25 cents.....	27.75
One-quarter engineer's time, at 37½ cents.....	3.47
Total labor	\$40.47

As the amount burned was 126.81 tons, the cost per ton was 31.9 cents.

For operating the fan and feed pump of the unit under test, 694 pounds of steam per hour at a gauge pressure of 130 pounds per square inch was evaporated, this being equivalent to 843 pounds from and at 212 deg. The rate of burning during this test was 3.85 tons per hour; consequently the steam required to incinerate one ton of refuse was 219 pounds per ton, which at 4 cents per hundred pounds makes 8.8 cents per ton. Therefore the cost of incineration per ton amounted to 40.7 cents.

The value of the 1.34 pounds of steam evaporated per pound of refuse at 4 cents per hundred pounds amounts to a revenue of \$1.072 per ton. This leaves a net profit of 66.5 cents per ton, which exceeds the guarantee by more than 50 per cent.

The capacity of the plant was to be 300 tons of mixed refuse per 24 hours without the use of additional fuel. The test showed the capacity of the four units to be 330 tons of extreme summer refuse, 334 tons of extreme winter refuse and 326 tons of average annual refuse; the requirement being therefore exceeded by about 10 per cent. It was found that one furnace can handle 92 tons per day without undue crowding, so that by working an extra shift at the end of the week it is possible to shut down one whole unit for repairs without reducing the daily capacity of the plant below the average of 300 tons.

One of the requirements of the specifications was that the air used for forced draft should be heated to a temperature of not less than 300 deg. before entering the grates. During the test this air was found to have an average temperature of 351, 358 and 398 deg., respectively, in the tests with various classes of refuse.

The contractors for the plant were the Power Specialty Company, which was represented at the test by Vice-President E. H. Foster and Chief Engineer John Primrose, assisted by Mr. McGuire, superintendent of the Seattle incinerator, by Assistant Engineer Wooley and Superintendent of Construction McEwen. The engineers of the plant, who acted for the city of Milwaukee, were represented by Mr. S. A. Greeley, assisted by Messrs. W. J. Koch, Fales, Ryan and Zahn. During the test the plant was also inspected by Messrs. Chas. J. Poetsch, J. P. Sherer, A. J. Grundeman and L. A. Jansen, Commissioners of Public Works of the city. The company placed Mr. E. H. Foster in charge of making the tests, Mr. McGuire having direct charge of the firemen operating the furnaces. These firemen were chosen from the men regularly operating the plant, which were the best available, but no skilled firemen were employed especially for the test.

ROAD CONSTRUCTION TERMINOLOGY

New York, June 17, 1910.

Editor of the Municipal Journal and Engineer,
231-41 West 39th Street, City.

Dear Sir: Allow me to compliment you on your interesting number of June 15, devoted to bituminous road construction. At the same time I would call your attention to the fact that in your editorial on "Road Construction Terminology," you have, I think, confused the difference between bituminous macadam and bituminous concrete. The term "bituminous macadam" is applied to a construction where stone of one size is used, whereas the term "bituminous concrete" applies to a mineral aggregate consisting of more than one size of stone, the voids in which are filled with sand and filler. You will readily see that this is so by the analogy with Portland cement concrete. It seems to me that this should not go without correction.

Yours very truly,

CLIFFORD RICHARDSON.

The above letter forcibly illustrates the desirability referred to in the editorial, of an agreement upon terms to be used in connection with this subject. The meanings assigned to "bituminous macadam" and "bituminous concrete" to which Mr. Richardson takes exception are those which are given to these terms by several practical road men to our knowledge, while we do not know of any who use the words in the sense given by Mr. Richardson. In Hubbard's "Dust Treatment and Road Binders", we do not find any definition of either of these terms, although both of them are employed. In an English book on "Tar Macadam," by J. Walker Smith, which was published last year, we find tar concrete defined as a "mixture of an aggregate of various and varying sizes with a tar matrix"; and tar macadam as "new or old macadam spread or grouted with tar compounds." Bitulithic, which is perhaps the most complete mixture of assorted sizes of aggregate, has been called bituminous macadam, and similar mixtures laid by other contractors than Warren Brothers are generally given that name.

As to analogy, it still seems to us that the analogy lies with our own definition. The top layer of macadam usually has its interstices well filled with screenings as well as clay or other binder. Macadam's original idea of having nothing but one size of stone in the road having been abandoned years ago. Moreover, Hubbard and other writers refer to the construction of "bituminous macadam" by working into the top layer of stone a mixture of sand and bituminous binder.

We hope that any who may read this and who have a definite idea as to how these terms are used in their locality will send us the information in order to assist in bringing about an agreement as to something in the nature of an exact meaning for these two expressions.

ELECTRIC LIGHT AND POWER STATIONS

Number, Output, Total Cost, Income and Operating Expenses of
All United States Plants—Growth of Municipal Plants
—Increased 54 Per Cent in Five Years.

A REPORT of the Census Bureau for the year 1907, which is now in press and soon to be issued, gives a number of interesting figures concerning both commercial and municipal central electric light and power stations in the United States. It shows the total number at that time to be 4,714, the reported cost of which had been \$1,096,913,622 for construction and equipment. During the year in question they had earned \$175,642,338, of which \$169,614,691 was for electric service, including \$125,755,114 for lighting. The expenses during the same time were \$106,205,149, of which \$11,733,787 was for salaried officials and clerks and \$23,686,537 for wage earners. The output was 5,862,276,737 kw-hours. The lamps wired for service comprised 555,713 arcs, 41,445,997 incandescents and 162,338 other varieties.

During the five years preceding 1907 the number of stations had increased 30.2 per cent, the cost of construction and equipment 117.3 per cent, the gross income 104.9 per cent, the total expenses 91.5 per cent, the kw-hour capacity of dynamos 123.5 per cent, the number of arc lamps 41.4 per cent and the number of incandescents 127.8 per cent.

One of the distinctive features of the report is the statement that nearly three-quarters of the stations reported both in 1907 and 1902 were operated by incorporated companies. Something less than one-fifth of the total were owned by individuals. As a rule, central electric stations are concentrated in the most populous states. New York, Pennsylvania, Illinois and Ohio, which together contain 29.6 per cent of the total population of the United States, contain 27.5 per cent of the total number of central stations and their annual output was 43.6 per cent of that of all the stations in the country. Comparing the relative populations and numbers of stations, the proportion of stations was larger than the proportion of population in the North Central and Western divisions, and smaller in the North Atlantic, South Atlantic and South Central divisions. The Western division, with less than 5 million population, had a greater primary horsepower, larger dynamo capacity and more incandescent lamps wired for service than the South Atlantic and South Central division combined, the population of which was about 27 million. In per capita showing the North Atlantic Division was second in rank, the North Central third, the South Atlantic fourth, and the South Central fifth.

The development of the alternating current by means of the single phase or polyphase dynamo had increased until, in 1907, the kilowatt capacity of this class of machines was 82 per cent of the total dynamo capacity of all central stations. This is due to a considerable extent to the transmission of current over longer distances.

The conditions in 34 selected cities located in all parts of the country are analyzed in the report in some detail. In these cities the income from electric railway service was \$1,960,551; from sale of the electric energy to other electric companies, \$779,728; from heating, cooking, welding, etc., \$117,560; and from charging automobiles, \$135,121. In these cities the steam turbine is used as a motive power to a very large extent; only four gas engines, with a total of 60 horsepower, being used. Less than one-tenth of the power was developed by water turbines.

As showing how the central station lends itself to comparatively small units, 81.8 per cent of all the stations were under 500-kilowatt capacity, and 64.4 per cent were under 200-kilowatt capacity.

Of the electric central stations 329 reported that they also operated gas plants; but this does not include instances where a whole or a controlling portion of the stock of a plant of one kind has been acquired by one of the other, the companies thus being operated under separate managements, although to

a large extent being owned by the same individuals. During the five previous years the sale of electricity had increased 101.5 per cent and that of gas 62.3 per cent.

MUNICIPAL PLANTS

During the five years referred to, municipal plants increased more than 100 per cent more rapidly in their number than commercial stations; there having been an increase of 53.6 per cent in municipal and 23.4 per cent in commercial stations, the municipal numbering 1,252. These figures, however, exaggerate the actual relative increase because of the fact that many of the commercial companies had disappeared by consolidation with other companies, which consolidation does not take place in the case of municipal plants. On the other hand, 33 stations reported as municipal in 1902 had become commercial stations in 1907, while 113 reported as commercial in 1902 had become municipal in 1907. These facts do not furnish corroborative evidence of the claim which has been made, sustained by what appears reasonable argument, that the drift of these public utilities is from municipal to commercial use. On the contrary, there appears to be a distinct field for municipal electric stations, not only because of a feeling which may exist in many localities that these public utilities should be owned by the cities, but because many of the places in which municipal plants are located do not present sufficient inducement for the investment of commercial capital.

The cost of construction and equipment of municipal plants in 1907 was reported as \$42,879,447, an increase of 94.7 per cent in five years. The gross income was \$14,011,999, an increase of 141.2 per cent in five years. These include estimated income for current consumed in municipal buildings, lighting streets, parks, etc. Of this gross income \$13,614,434 was for electric service, \$13,040,263 being charged to lighting and \$516,373 for stationary motors; the latter being an increase of 632 per cent in five years. The figures last given show the greatly increased extent to which cities are furnishing electricity for commercial purposes other than lighting. The total expenses of the municipal stations was \$9,167,188, of which \$3,232,783 was for fuel, and \$3,485,015 was for salaries and wages. During the five years the salaries of officials, clerks, etc., had increased 117.5 per cent, while the number of such employees had increased but 70 per cent.

The number of gas engines used increased 333 1/3 per cent in the five years in municipal stations, while they had increased but 161.9 per cent in commercial stations. There were in municipal plants 153 water wheels delivering 30,347 horsepower; 2,395 dynamos with 209,016 kilowatts capacity and an output of 289,461,788 kw-hour, an increase of 47.8 per cent in the five years. In the municipal plants during these five years the number of arc lamps had increased 63.3 per cent and the incandescent lamps 156.9 per cent.

The stability of the municipal plants was exemplified by the fact that 774 of the 815 plants which reported in 1902 also reported in 1907. Of the 41 which failed to report, 33 had become commercial stations, four had discontinued operations or were idle, two were connected with public institutions and were excluded from the census of 1907, one was merged with another municipal plant because of consolidation of the cities, and one had been destroyed by fire and had not been rebuilt at the time of taking the later census.

Most of the municipal stations are in places of small population, nearly seven-eighths of the total number being in places of less than 5,000, and less than 3 per cent in places having 25,000 population or over. Of the eight cities in the South Atlantic, South Central and Western divisions having a population of over 100,000, only one had a municipal plant. Of the sixteen cities of more than this population in the North Atlantic division, only two had municipal plants; and of the fourteen large cities in the North Central division, nine had municipal plants. The one station reported for the South Atlantic division was in Baltimore, while the four stations in the "500,000 and over population" class of cities in 1907 and 1902 in the North Central division were all located in Chicago.

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will do so gladly and without cost.

JUNE 29, 1910

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Milwaukee's New Incinerator

ON another page of this issue is presented a description of the final tests of the Milwaukee incinerator, which tests should be extremely gratifying to the city, to the engineers who were employed by the city for advising them and to the contractors who have completed within the time limit a plant which apparently meets all the specified requirements and exceeds them in most respects. This and the incinerator on Staten Island apparently represent the most advance practice in the United States in connection with the incinerating of municipal refuse and will undoubtedly be studied by experts and city authorities of all cities which are seriously considering the adoption of the best plant obtainable for this purpose. The test has apparently shown that the plant is capable of producing a revenue without creating any nuisance whatever; and it remains only for the city to see that it is operated in the most effective way. This they apparently are intending to do, and they have, we understand, engaged as manager of the plant Mr. S. A. Greeley, who was the resident engineer in charge of its construction.

Road Treatment Terms

IN a letter on another page of this issue an engineer who has had considerable experience in pavement and road work takes exception to our definition of the terms "bituminous concrete" and "bituminous macadam" as given in the June 15th issue. This letter is accompanied by our comments upon the same. After receiving it we addressed an inquiry to the Office of Public Roads of the U. S. Department of Agriculture as to its understanding of these two terms, and have received from the acting director, Mr. A. S. Cushman, the following reply:

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF PUBLIC ROADS,

WASHINGTON, D. C., June 24, 1910.

Editor MUNICIPAL JOURNAL AND ENGINEER,
231-241 West 39th Street, New York City.

DEAR SIR:—In the absence of Mr. L. W. Page, the Director of this office, your letter of the twenty-third instant has come to my attention. This office has never attempted to distinguish between the terms "bituminous concrete" and "bituminous macadam." In the opinion of the writer it is doubtful whether any such distinction is justified. At the present time there is no specification which defines a macadam road. In some States the usual form of macadamizing is to roll different-sized stones in courses. According to other States' specifications, the run of the crusher is rolled down. Both types of roads, however, are generally spoken of as macadamized. If now a bituminous binder is used in conjunction with these two types of construction, why should we speak of one as a bituminous concrete and the other as a bituminous macadam? If the run of the crusher mingled with a certain amount of sand or other filler is coated with bituminous material and rolled down, the completed road is usually defined as a bituminous macadam, and the words "bituminous concrete" are rarely used to describe a particular type of road. It is possible that, working under a specification in which broken stone from the crusher is deliberately graded into selected sizes of material and then remingled according to a definite formula, with the addition of a filler and bituminous binder, we might describe this material as a bituminous concrete. It is probable, however, that after having been rolled down to form a road surface, it would continue to be generally described, even by engineers, as bituminous macadam.

The writer cannot see any particular reason for distinguishing between these terms, unless it should come to an expert view of a situation of a highly technical nature, with reference to certain patent claims that have been advanced.

Respectfully,

A. S. CUSHMAN,
Acting Director.

We are sorry that the office does not attempt to distinguish between these terms nor see any particular reason for distinguishing between them. As it is now, these and many of the other terms used in bituminous road treatment practically have no meaning at all and only confuse descriptions, so that the only way to describe modern methods of road treatment is to avoid the use of terms altogether, and cumber the descriptions with repeated explanations in place thereof. Either some distinction made between these two terms should be generally recognized or one of them should be dropped altogether; and it appears to us that there are good arguments in favor of the former.

We desire to enforce by repeating in this column our request that all who have definite ideas as to the meaning of terms employed in bituminous road work, which are generally accepted in their locality, will communicate such to the MUNICIPAL JOURNAL with a view to bringing about a general acceptance of definite meanings for such terms, or at least an understanding of their various significances in different localities

Prompt Comptroller's Report

A NEW record has been made in the publication of the report of the Comptroller of New York City, which we hope will be followed and even improved upon by other departments. On June 15 Comptroller Prendergast issued his report for the year ending December 31, 1909, which is said to be six months earlier than any previous annual report of that department. This report contains tables and statements summarizing the operations of the City Treasurer and the sinking funds for the year.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

New Style of Belgian Blocks

Baltimore, Md.—City Engineer Fendall returned last week from Salisbury, N. C., where he inspected quarries at which belgian paving blocks are manufactured, and said he had found a material that came up to the requirements of the recent convention in Chicago. Blocks from the quarries are to be laid on Carey street, which is to be repaved from Pratt street to Columbia avenue, by Patrick Beddington. The new blocks are well cut and so perfectly square that there will be but half an inch between them when laid on the street. Mr. Fendall said that in the case of other belgian blocks used in Baltimore in the past the space between them has ranged from one to two inches. The North Carolina blocks will cost six or seven cents more per square yard than blocks now being used in Baltimore, but Mr. Fendall said the difference would be more than made up in the cost of the tar filler used between the joints. He figures that by laying blocks of the North Carolina pattern he can save from 20 to 25 cents a yard in the price of the filler, not so much tar being necessary to close up the joints. It is expected that future specifications for belgian block work will be prepared so as to admit the North Carolina blocks.

Rocky River Bridge Approaches Completion.

Cleveland, O.—The work of removing the steel centering from the great concrete arch of the Rocky river bridge is progressing rapidly. Within a few days the space underneath the arch will be entirely clear. County Bridge Engi-



Courtesy Cleveland Plain-Dealer

NEW CLEVELAND BRIDGE NEARLY FINISHED

neer Felgate said that the work on the bridge is satisfactory. Steel ties are now being placed on the arch for the street car tracks. The floor will be filled in with concrete, after which the pavement will be put down. Both ends of the arch were completed last fall, but the work of stripping the centering piece by piece from the concrete was not begun until a short time ago. The bridge will be opened by September 1.

Approve Contract for Havana Paving

Havana, Cuba.—President Gomez has approved the plans for the new paving of this city as presented by the commission, composed of Mr. McComb, Chief Engineer of the Sewerage Works; Mr. J. B. Babé, Chief Engineer of Roads and Bridges; Señor E. Duque Estrada, Chief Engineer of Public Shops, and the Municipal Architect. After careful study and observation the commission recommended the use of granite blocks for the thoroughfares where traffic is heavy. For these streets where the electric cars run compressed blocks will be used and for the rest of the streets asphalt blocks, with modified layers. The streets surrounding public buildings probably will be paved with wood blocks. The paving materials will be imported from the United States. The McGivney & Rockeby Company are the contractors. The total outlay will be \$6,000,000. The work will begin in July.

Philadelphia May Use Filbertine for Repairs

Philadelphia, Pa.—Mayor Reyburn, Director Stearns, Chief Benson and Richard Y. Filbert, of the Filbert Paving and Construction Company, were out inspecting streets last week. The Filbert Company, which controls a patented process, is endeavoring to interest the Mayor and other city officials in a proposition to use its preparation in the repair of streets instead of asphalt. If adopted the Filbert Company would secure a monopoly of certain kinds of street surfacing. The Filbert Company has agreed to cover two stretches of Broad street, approaching Lehigh avenue, known as the "Hump," with its preparation if the city will give the firm the granite blocks taken up. It was suggested that the material would make possible the resurfacing of Chestnut street. The cost is the same as that for which some asphalt repairs have been done when competition for the work was invited.

Many Miles of Street Oiled, Reports Official

Portland, Ore.—One hundred and sixty-five miles of streets in Portland have been oiled this Spring at a cost of approximately \$26,000, and there are still several miles to be treated. This announcement was made by Superintendent Donaldson, of the Street Cleaning Department, who has charge of the work. He believes the experiment will prove a great success and that it will be repeated again next Spring. That oiling is both more sanitary and satisfactory in keeping down the dust is his opinion. He also declared that treating the macadam roads with oil was as economical as sprinkling with water.

Asphalt Plant Near Crematory

Spokane, Wash.—Spokane's proposed \$15,000 asphalt plant, an appropriation for which has already been made by the City Council, will probably be located on the city's property at the crematory, near the west end of the West Olive bridge. City Engineer Morton Macartney recommended this location, and the Board of Public Works and Mayor N. S. Pratt have practically decided upon placing the plant there. In his recommendations the engineer points out that the best railroad facilities are available at that site and that the locating of the two city institutions together would be an advantage in more than one particular.

Anti-Pike War

Steubenville, O.—The efforts of Wayne Township farmers to get turnpikes, covering a period of two years, still continues to be upset by the strenuous anti-pike faction. There have been injunction suits against every phase of the work on all the pikes proposed. The Unionport and Smithfield pike was strung up last week when Messrs. J. W. Ferguson and Joseph McNary secured an injunction to prevent opening bids and selling the bonds. The war is quite bitter, and lifetime neighbors and members of the same family are arrayed in factions against one another.

Local Initiative Alone Contemplated under State Law

Harrisburg, Pa.—Deputy Attorney-General William M. Hargest has settled the question whether counties can apply for State aid for reconstruction of roads without concurrence of township supervisors, by a ruling that they cannot do so, except where roads have been taken under the provisions of the county roads act of 1895. The question has been before the State Highway Department from several counties, the latest instance being where the Commissioners of Carbon county asked the Highway Commissioner to let a contract for reconstruction of an abandoned turnpike running through unseated land. Mr. Hargest holds that the law contemplates local initiative, and that the road act of 1909 repeals the portion of the road act of 1901 relative to abandoned turnpikes. Abandoned turnpikes are not county roads, but township roads, and must be maintained and improved as such. The decision will have effect on proposed road building in other counties.

SEWERAGE AND SANITATION

To Extend Quarantine Regulations to Domestic Animals

Buffalo, N. Y.—According to a provision of a pending health ordinance, cats and dogs belonging to families quarantined on account of contagious or infectious diseases must be confined within the premises. This provision is the result of an instance brought to the notice of health officials where diphtheria had been transmitted by a dog.

To Stop Pollution of Great Lakes

Buffalo, N. Y.—The movement which was started by the Niagara Pure Water Conference here a year ago to stop the pollution of the Great Lakes and their tributaries has taken a favorable form and the dream to have pure water for the Niagara frontier will be realized much sooner than was anticipated. Word has been received from Washington that the Austin bill has been referred to the Secretary of War and that he has recommended that the matter be referred to the International Fisheries Commission for investigation.

All Ohio Cities Must Establish Boards of Health

Columbus, O.—Attorney-General Denman has rendered an opinion to the effect that all cities in the State, in accordance with the provisions of the new General Code, must pass ordinances providing for the establishment of Boards of Health. He finds that the law as it now stands is mandatory, and there is nothing to do but to provide for such bodies. The old municipal code contained such a provision, but later this was repealed to the extent that it became optional and not mandatory. Subsequently another act was passed making the Board of Public Service the Board of Health ex officio. However, in the preparation of the new code this law was again changed, so that it is now a duty of City Councils to create such Boards. It is optional, however, with villages in the creation of Boards of Health, but they have Health Directors.

To Educate Public in Health Matters

Columbus, O.—Distribution was begun recently of the new bulletins issued by the Board of Health, incident to the new sanitary and health campaign. The Board is contemplating novel features. It is the ultimate plan to inaugurate a system of public education in matters of personal health, something along the same plan as that adopted in Seattle, Wash., whose recent health bulletin contains advice regarding the care of personal health. People are told in Seattle to keep regular hours, to get plenty of sleep and to maintain the highest standard of personal health.

Stream an Open Sewer

Duluth, Minn.—Brewery Creek is in horrible shape, according to Health Department Inspectors who examined it. They declare that it is a filthy open sewer, reeking with slime, and giving off a most sickening stench. They claim that it is a serious menace to the health of scores of families living on both sides of it as well as an almost unbearable nuisance. The water is very low because of the lack of rain. Steps were taken to have it flushed by the Board of Public Works, which will turn two or three streams of water into it without loss of time. But the Board demands that the expense be paid from the Health Department fund. The members state that the creek runs through private property, and that they have no right to flush it of their own accord. The creek flows between Sixth and Seventh avenues east in a diagonal direction through a thickly settled portion of the city. Efforts have been made in the past to have it covered by a concrete culvert, but none of them has materialized. It is said, however, that it is inevitable that this be done in the near future.

Inspection Started by Health Officer

Lexington, Ky.—Dr. N. R. Simmons, City Health Officer, assisted by Prof. R. M. Allen and Dr. D. J. Healy, of the Kentucky State Experiment Station, has begun an inspection of the various stalls in the market house, soda fountains, restaurants and hotels for the purpose of ascertaining their sanitary condition. A full report of their inspection will be made to the Board of Health when it is completed. Much time was spent in making an inspection of the Market House. The inspection will be the most complete and rigid ever conducted in the city.

Milwaukee Has Typhoid Epidemic

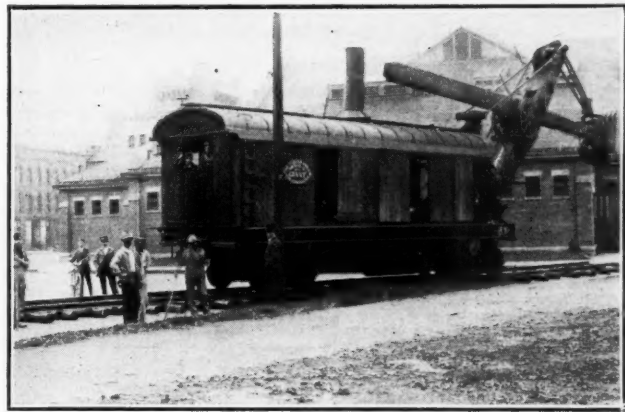
Milwaukee, Wis.—Milwaukee is in the midst of a typhoid fever epidemic, according to the declaration of Dr. W. C. Rucker, Commissioner of Health, at a public address. The cause of the epidemic is attributed to drinking water from Lake Michigan. Filtration and a change in the method of sewage disposal are advocated as a remedy to prevent frequent epidemics. Boiling of water is recommended as a means of checking the present spread of the disease. Chlorination of the water may be tried. The uniform distribution of typhoid and diarrheal diseases throughout the city indicates that the disease is not due to such causes as impure milk. The fact that the number of cases of typhoid in the city has a relation to the prevailing winds, carrying polluted water toward the water intake, is one of the indications that contaminated water is the cause.

Typhoid Traced to Well

Schenectady, N. Y.—According to Health Officer Clowe, there are seven cases of typhoid fever in this city and four of these have been traced directly to a contaminated well on a dairy farm in Rotterdam. The Health Department took the matter up and closed the well, transferring the cows of the farmer to another place. They then found that the milk was all right. It is claimed that both the farmer and his helper contracted the disease from the well and were treated by a physician in Albany County. The officials are now after the doctor, who did not report the cases to the Health Department.

Steam Shovel Used in Sewer Work

Syracuse, N. Y.—The biggest steam shovel ever used in Syracuse on public or private work recently arrived. Temporary tracks were laid from the Lackawanna Railroad yard to Fayette and Franklin streets, where the contractors on the intercepting sewer have set it to work. The big giant



Courtesy Syracuse Post-Standard

GIANT STEAM SHOVEL USED IN SEWER WORK

shovel has a boom forty-six feet long and weighs sixty-five tons. It will be used for open cut work in laying the sewer southward through the city from the New York Central station, where the trunk work will end. Chief Engineer Glenn D. Holmes, of the Intercepting Sewer Board, said the shovel would enable the contractors to make fast progress with their work.

Nine Manholes Blow Up

New York, N. Y.—Nine manhole covers over a sewer in Fiftieth street between Eleventh avenue and the Hudson River blew up simultaneously June 20. One of the covers, about 50 feet from the recreation pier at the foot of the street, was blown into the river. Two other covers came down with such a crash that they were broken into bits. The explosion is thought to be due to gasoline in the sewer.

Street Ice Cream Impure

Wilmington, Del.—Dr. A. Robin, City Bacteriologist, has submitted to the Board of Health his analysis of samples of ice cream sold by peddlers about the streets and samples secured from manufacturers in the city. Dr. Robin found that in the street peddlers' ice cream a coloring matter was used, which is contrary to the pure food laws, and that the cream was full of bacteria. The Health Board intends to stop the manufacture of all impure ice cream.

WATER SUPPLY

Board of Health Will Resist Shutting Off Water

Ardmore, Pa.—In line with the uprising of almost two score communities, suburbs of Philadelphia, against the Springfield Consolidated Water Company's plan to almost double the minimum rate to consumers or else shut off the water the Lower Merion Township Health Board has served notice on the company that the latter alternative will be an intolerable menace to public health, and as such will be resisted by all the police power of the township.

Water Works a Good Revenue Producer

Cumberland, Md.—The report of the Water Commissioners shows the water works owned by the city to be a good revenue producer. The water rent collections reached \$39,904.95, while the expenses of the Department for the year were \$19,653.18. The water supply is obtained from the Potomac River, and last year more than 2,000,000,000 gallons of water was pumped through the works to supply the needs of the city. The last Legislature passed a bill authorizing a bond issue of \$500,000, subject to a vote of the citizens, for the establishment of a new source of supply and system of pumping if found necessary. It has been suggested that in order to get good drinking water the city would have to get its supply from Evitts Creek.

Water Low in Denver Reservoirs

Denver, Col.—Denver is short of water, not because there is any lack of supply in Cheesman Lake, but because the present conduit is not large enough to bring a day's supply to the city. About 57,000,000 gallons are used daily, and the conduit can carry but 54,000,000, so the reservoirs are being depleted. There is a new conduit of ample size ready to be connected, but in order to do this part of the present daily supply would have to be cut off for three days.

Water Board to Charge City \$60,000

Jersey City, N. J.—The Street and Water Board has passed a resolution to the effect that beginning next December they will charge the city \$60,000 a year for water supplied to the schools, the City Hall, police stations, fire houses and other public buildings. The Board will try to get the Board of Finance to provide in the tax budget for the payment of these charges, but their success is a matter of doubt.

Penalize Slow Contractor

Minot, N. D.—The City Commissioners, in settling with James Kennedy, of Fargo, who built the water plant, deducted \$50 per day for every day after November 1 that the plant was incomplete. The final penalty amounted to \$7,050. Kennedy will probably sue.

Saginaw Citizens Inspect Toledo Filtration Plant

Saginaw, Mich.—A trainload of 500 citizens interested in the subject of pure water left Saginaw June 15 for a trip of inspection to the Toledo, O., filtration plant at Maumee. They were met by Mayor Brand Whitlock; Superintendent J. M. Wisler, of the filtration plant; Consulting Engineer Clark and other officials and citizens of Toledo, who escorted them over the works, and explained its operation. As an educational measure the trip was a success, and resolutions favoring a similar plant for Saginaw were passed.

Pure Water for Valley City

Valley City, N. D.—It looks now as if the city of Valley City was to have pure drinking water in its water mains. The experiment made on the lots of Alfred Anderson, on Fourth street, near Eighth avenue, in sinking a well to supply water for the city, has thus far proved successful. A good-sized well was sunk and a large pump driven by a seven-horsepower motor worked for several days at the well, but could not lower the water. It is believed that a well of sufficient size would furnish the city with a supply of water. It is excellent drinking water. Mayor Platou sent samples of the water to the A. C. at Fargo and the State University at Grand Forks for analysis, and as soon as it is ascertained that the water is pure, it is probable that the city will go ahead and build a pump station and prepare to turn the water into the mains of the city.

Urges State Tax on Water Waste

Harrisburg, Pa.—The necessity of conserving the supply of water in Pennsylvania is becoming so imperative that the State Water Supply Commission, in its annual report to Governor Stuart, suggests a State tax on water waste, such as is being undertaken in New Jersey. The report gives in detail the results of observations taken of the flow of the principal streams of Pennsylvania, and says:

"It would seem from the above reports that the normal precipitation in some parts of Pennsylvania is little more than sufficient for the requirements. A given deficiency in the precipitation to-day is of more importance than formerly, for the consumption for domestic and industrial purposes is increasing rapidly, while at the same time the proportion of run-off to rainfall tends in many parts of the State to decrease yearly, owing probably to changed watershed conditions; so that the available balance between consumption and supply is growing less, and in the case of some watersheds has been exhausted." Continuing, the report goes into the recent droughts and their effect on the water supply, continuing: "The droughts of 1895, 1900, 1904 and 1908 have taught us that with our fairly equal seasonable distribution of precipitation a seemingly small departure from the normal, either in distribution or total precipitation, has a great effect upon the run-off of streams and the available water supply. To meet these conditions it will be necessary either to restrict the use of water and control its waste or to store it in wet seasons for use when the stream flow depreciates. As in the case of other natural resources, the water supply should be used to the fullest, but unnecessary waste should be prevented. The State of New Jersey has attempted to prevent the waste of water by levying a tax of from \$1 to \$10 per million gallons for all water used for the supply of municipalities over and above a rate of 100 gallons per capita per day. Similar methods are applicable to industrial or commercial water supplies."

Utica Makes Offer to Water Company

Utica, N. Y.—The Board of Estimate and Apportionment has approved of a new contract with the Consolidated Water Company, as prepared by Corporation Counsel Townsend, thus bringing to an end a controversy which has been going on for several years. Prior to the final agreement the Aldermanic Committee, Alderman Wurz, Chairman, had made the following suggestions to the company, which were accepted by the corporation:

That the company install a suitable water purification plant.

That the old contract be canceled and all the litigation now pending be discontinued and dismissed without costs to either party.

That of the sum to be paid the water company by the city in settlement of its bills for 1908 and 1909 there be paid in cash \$83,688.64, and the balance, \$5,358.18, be paid by a certificate payable from the tax levy of 1911.

That the bill for water from November 15, 1909, to November 15, 1910, be paid as proposed by the company.

That for the present number of hydrants and all up to 1,180 on the existing mains the company be paid a flat rate of \$35,000 a year. For each additional hydrant placed on mains hereafter laid, \$36 per year, and when the total number exceeds 1,180 the rate for all hydrants, old and new, be \$30 per year. That the city pay for all hydrants and pay the cost of erecting the same plus 10 per cent. for engineering and supervision. That the company furnish the necessary branches and the pipes leading from the mains to the hydrant, but not including valve, the cost of restoring pavement to be paid by the city, and the company to keep the hydrants in repair.

That the company furnish water for all schools and city buildings now standing or in process, library, etc., for \$4,500 a year, the city to maintain the plumbing in good condition and guard against any waste of water. In new buildings to be erected by the city to pay 50 cents per 1,000 cubic feet for water on metered service. That the city have from the hydrants water free for flushing sewers, but not to take it while there is a fire or a main is out of commission.

That the company place mains in all streets which are graded when the city shall order it, the city placing one hydrant for each 528 feet of such extensions; the company is also to extend its mains on such streets as the landowners guarantee that the company will receive for five years an annual rental of not less than 10 cents per foot.

That no new main be laid of a smaller diameter than six inches.

STREET LIGHTING AND POWER

Concrete Electric Standards

Chicago, Ill.—Electric light standards of concrete have been erected along the length of Lincoln Park Boulevard, Chicago, and their appearance is generally considered far superior to wood or metal used for the same purpose. Two hundred and fifty of these poles have been raised along the highway. Their artistic feature was the only thing in consideration when it was decided to make use of concrete, but the practical utility of poles of this character is being rapidly recognized. Many of the larger railroad companies of the West are planning to make the innovation already, not only as an economy, but to prevent the frequent interruptions of service caused by falling poles. A wooden pole is weakened by the rotting of some soft portion near the ground, and when in this condition a trifling extra strain is sufficient to bring it to the ground. While the poles of concrete are more expensive in the first place, their life of usefulness is thought to be almost unlimited.

More Lights Wanted

Cincinnati, O.—A communication from the Business Men's Club was read at a recent Council meeting calling attention to the fact that the "downtown district" is poorly lighted; that the absence at night of adequate light in the principal business thoroughfares is a matter that excites the surprise of and elicits unfavorable criticism from visitors. All this, as the Business Men's Club points out, occasions humiliation to those citizens of Cincinnati who are anxious that the city shall make a good impression on visitors and sojourners who are attracted here by either business or recreation. The communication earnestly prays that Council will at once take steps to have the business part of the city properly lighted, to the end that Cincinnati shall no longer be considered a backward town in the eyes of the sojourners within the city's gates. On motion of Mr. Mullen the communication was referred to the Committee on Light.

Ornamental Steel Signs

Denver, Col.—The ornamental street signs designed by the Art Commission for Seventeenth street, Fifteenth street and lower Sixteenth street have been completed, and are now being placed in position along Seventeenth from Broadway to the Union Depot. They will go on the other streets later. The signs, four of which are at each intersecting street corner, are of bronze. The two adjacent signs are cast in one piece, are separated by an ornamental piece and go in circular form on the combination light and trolley poles. The letters are in polished bronze on a dark background and the reading in each case is from the sidewalk side. The double signs cost \$3.50 each, including the setting in place, all being made by a Denver firm.

Question of Relocating Gas Mains Amicably Settled

Syracuse, N. Y.—The Syracuse Lighting Company and not the city of Syracuse will bear the cost of relocating gas mains in streets, where they lie in the path of the intercepting sewer. All of the mains must be moved in South Franklin, West Jefferson and South Clinton streets, where sewer construction will be carried on this summer. The estimated cost of relocating the mains is \$10,000. Several weeks ago the Lighting Company, in negotiating with the Intercepting Sewer Board in regard to the relocation of gas mains in the streets through which the big sewer is to be laid southward through Syracuse, took the position that the city must bear the entire cost. This attitude presented an embarrassing situation, as it was known that some of the gas franchises under which the Lighting Company is operating carried no provision for relocation of mains by the company when they interfered with the prosecution of important public works. Corporation Counsel Magee found that the lighting company holds five gas franchises which it had acquired from the original grantees, the earliest of which bore the date of 1849. Two of these franchises had no requirement that the holder should relocate its mains and pipes when they interfered with projected municipal improvements; three had provisions requiring such relocation by the company. However after a conference with Mayor Shoenthal the gas company agreed to stand the expense.

Favors Alleged as Cause of Lighting Deficit

Fairview, Okla.—Eighteen months of operation of the municipal electric light and water plant has cost the taxpayers about \$5,000, reports the Mayor, Mr. P. H. Wimpey. The electric light plant is of 100-kilowatt capacity, and supplies about 125 customers, who receive a sliding scale rate of 15 to 10 cents per kilowatt-hour. Several special rates have been made by previous City Councils to favored large consumers, one consumer having a five-year contract for energy at 1.5 cents per kilowatt hour, although the figures for the operating costs alone (on which the estimate was made) showed this amount to be far below the production costs. The deficit on the plant for the present year has been \$3,500, and a special tax of \$6,000 has had to be levied on the citizens to meet the cost of running the station.

Improved Street Illumination in Great Falls

Great Falls, Mont.—Within thirty days the business district will be illuminated by twenty-seven five-light tungsten cluster posts. These posts will be of metropolitan design, similar to those used at the present time in Minneapolis on Nicolett avenue. Nine of the posts will be placed on Central avenue and the remaining eighteen on the side streets, as proposed and in accordance with a plan of location laid out by City Engineer Allen.

Want Lights Cheaper

Los Angeles, Cal.—Representatives of the Los Angeles Municipal League are circulating a referendum petition to secure a vote on a recently passed city ordinance reducing the electric lighting rate from 9 to 7 cents per kilowatt-hour. The circulation of the petition, it is believed, marks the beginning of the end of a long fight between the City Council and the local lighting and power companies.

New Franchise Gives Lower Rates and No Monopoly

Louisville, Ky.—A 15 per cent reduction in the price of heating and lighting gas is one of the features of the franchise ordinance providing for the consolidation of all Louisville's heating, lighting and power companies. The price of lighting and fuel gas, as fixed in the ordinance, is based on an average price taken from the leading cities of the country. This reduction, it is believed, is one of the concessions secured from the promoters of the consolidation by Mayor W. O. Head before he would consent to even consider the merger. In guarding the interests of the public Mayor Head has also informed the capitalists back of the merger that under no consideration would he attach his signature to an exclusive grant. The promoters were given to understand that the day after they purchased a franchise that a competing company could buy a similar grant after the General Council had passed a franchise ordinance.

Lower Rates Offered on Three-Year Contracts

Pasadena, Cal.—A basic or maximum rate of 5 cents a kilowatt hour for electric lighting, with a minimum monthly charge of 75 cents, is offered people of Pasadena, by the municipal electric plant of the city, provided the number of customers is increased from 2,125 to 4,000, who shall enter into a three-year contract.

Contract blanks are being circulated generally in the business districts of Pasadena, and the campaign will be extended later to all residence sections.

The rates proposed are as follows:

"Class A"—The first 100 kilowatt hours, or less, of energy furnished in any one month to any consumer, 5 cents a kilowatt hour.

"Class B"—The kilowatt hours of energy furnished in any one month to any consumer in excess of 100 kilowatt hours and not exceeding 50 kilowatt hours, 4½ cents a kilowatt hour.

"Class C"—The kilowatt hour of energy furnished in any one month to any consumer in excess of 500 kilowatt hours and not exceeding 1,000 kilowatt hours, 4 cents a kilowatt hour.

"Class D"—The kilowatt hours of energy furnished in any one month to any consumer in excess of 1,000 kilowatt hours and not exceeding 2,000 kilowatt hours, 3½ cents a kilowatt hour.

"Class E"—The kilowatt hours of energy furnished in any one month to any consumer over 2,000 kilowatt hours, 3 cents a kilowatt hour.

FIRE AND POLICE

Record Time by Firemen.

Duluth, Minn.—The Duluth fire department established an enviable record at the annual inspection conducted by the city officials, headed by Mayor Cullum, the board of aldermen, the fire commissioners, the underwriters, and Chief Joseph Randall.

The work of the men was of the highest class, showing speed, efficiency and familiarity with their duties, as well as much ability in the handling and training of their horses. The hitches were swift and the apparatus in excellent shape. Unusual speed was shown at No. 4 hall, Fourteenth avenue east and Second street, where 100 feet of hose was strung to the hydrant with water to the nozzle in 5½ seconds. The time is exceptionally short and hard to equal.

Committee Reports on Fire Autos

Omaha, Neb.—The report of the Fire and Police Board who went east to inspect the departments where motor-propelled machines are in use, recommends the purchase of an auto chemical truck. The report stated that the committee was neither in favor of the purchase at the present time of a motor-driven hook and ladder truck nor a motor-driven pumping engine, but "we believe the motor-driven hose and chemical a success, and as such suitable for fire purposes, as the same is used for commercial and private purposes. The cost of a motor combination is from \$5,000 to \$6,000, depending upon the make. We recommend that specifications be prepared and bids received therefor."

City Water Works Plant Has Fire Alarm Wiring

Phoenix, Ariz.—Work of connecting the city pumping plant with the city fire alarm system has been completed, and hereafter when an alarm is sounded the engineer at the water works building will be apprised of a fire at the same instant as the alarm is received at the headquarters of the fire department, and will thereby be enabled to lose no time in starting his pumps and give the requisite pressure direct upon the mains. Heretofore the engineer has been obliged to depend upon hearing the city hall bell sounding an alarm or upon receiving telephone messages apprising him of a fire being in progress. In a short time, in addition to starting his pumps, the engineer will be called upon to sound an alarm upon a great siren whistle to be erected upon the building of the water works. Superintendent O. Avery Thompson ordered this whistle, which will be the largest in Phoenix and which can probably be heard plainly in every part of the city. In this connection, Fire Chief Sullivan is arranging to inaugurate a system of daily test alarms. At a given minute each day one of the boxes will be pulled, the firemen being apprised beforehand just what box will be sounded, thereby preventing confusion. This system is followed in many of the larger cities, and results in definite knowledge of the actual conditions of every box in town.

Mounted Traffic Squad for Pittsburg.

Pittsburg, Pa.—About forty policemen are trying for positions on the new mounted traffic squad. Director of Public Safety Morin and Superintendent of Police McQuade are inspecting the work of the candidates at Shenley Park.

Kansas Cities Benefit from Firemen's Fund

Topeka, Kan.—State Superintendent of Insurance Charles W. Barnes will distribute \$41,538.25 from the firemen's relief fund this year, this amount representing two per cent of all the fire insurance written by all the fire companies operating in the State during the last year. The fire insurance companies are assessed two per cent of their business in Kansas, and this money is distributed among the cities of the State upon the basis of the amount of business written in each city. The money may be used for the benefit of widows of deceased firemen or for the purchase of accident insurance by firemen. Of the total amount distributed this year, \$3,340.99 goes to the Kansas State Firemen's Association. Kansas City, Kan., gets more in the distribution than any other city, \$5,513.19. Topeka receives \$3,340.74. Wichita, \$3,847.51. Leavenworth, \$1,608.66. Hutchinson, \$1,144.11, and Atchison, \$1,065.97.

Better Fire Alarm System

New York, N. Y.—A greatly improved fire alarm system will be installed in consequence of the action of the Board of Estimate and the Board of Aldermen in approving the plans which Fire Commissioner Waldo made for the betterment of the department. These plans involve an expenditure of \$2,200,000. The money will now be forthcoming and work will probably begin next month. The plans call for an expenditure of \$207,000 for the fire alarm system for Manhattan and the Bronx, \$150,000 for Brooklyn and \$10,000 for Queens. In addition, \$43,000 will be spent on new fire alarm boxes. The principal change contemplated is to place the wires underground wherever possible. Cables containing the fire alarm wires are now strung on the elevated railroad structure and in other places are carried on poles. It is held to be an element of danger to the system to have the wires overhead instead of in a subway conduit. It is planned to bring the whole fire alarm system up to date. The major portion of the appropriation will be for new fire houses and apparatus. Plans have been drawn for 25 new houses in Manhattan and the Bronx and 10 in Brooklyn. The buildings are to be of new design, built of concrete so as to make them absolutely fireproof. They are to be all of the same design, so that the fire houses will have a distinctive type.

Auto Engine Makes Good Record at Fire

New Carlisle, Pa.—At a fire in New Carlisle the new Springfield auto engine made a good record. It pumped water for one hour and fifteen minutes with a stop of a second. Only ten gallons of gasoline were used in making the trip and for pumping. The water in the fire cisterns had been exhausted and it had to be pumped from a hole dug in the bed of a creek.

Tire Bursts on Fire Chief's Auto

Tampa, Fla.—What might have been a serious accident to Chief A. J. Harris of the fire department, as he was going to a fire in Ybor City in his automobile last week, was the bursting of a front tire while the machine was running at a high rate of speed, sheering the car about somewhat, but luckily it kept "on its feet," and apart from some damage to the wheel on which the tire blew up, no harm was done. Chief Harris was driving the car himself at the time. A day or two afterward he died of acute indigestion.

GOVERNMENT AND FINANCE

Prefer Charges Against Civil Service Commission

Boston, Mass.—Jeremiah J. McCarthy, surveyor of the port, through counsel, Herbert Parker and Walter A. Webster, has filed with Gov. Draper charges against the State Civil Service Commission. Mr. McCarthy contends that the Commission did not treat fairly his appointment to be Fire Commissioner made by Mayor Fitzgerald. The Commission failed to approve the selection, and Mr. McCarthy claims that it entirely overlooked his qualifications for the place; in fact, made no "careful" investigation.

New Rochelle Charter Approved

New Rochelle, N. Y.—The New Rochelle city charter was unanimously endorsed at a public hearing held by the Common Council, and will probably be signed by Governor Hughes. It will probably be the only city charter in Westchester County approved by the Governor. The charter represents six years' work on the part of various citizens' committees, and at the hearing last week, only one or two minor objections were raised to its provisions. The charter creates a board of estimate and apportionment, which becomes the administrative body of the city. The board consists of the Mayor, Controller, Corporation Counsel, one member to be elected by the aldermen, and the fifth to be appointed by the Mayor, so that the Mayor will have control and be the responsible head of the city at all times. The Board of Aldermen will lose its power and become merely a legislative body. The charter is to go into effect on July 1, with the exception of that section which relates to the new City Court and becomes operative on January 1, 1912. The salaries of the elective officers are to be: Mayor, \$3,500; Corporation Counsel, \$3,000, and Controller, \$2,500.

Program of Mayor's Cabinet

Kansas City, Mo.—The following objects have been enumerated as the purposes of Mayor Brown's cabinet meetings:

To clean up the city.

To repair and improve the condition of the streets, sewers and bridges.

To bring the public utilities to a stricter compliance with their obligations.

To get the Kansas City Terminal Railway Company to "whip up" on the new Union Station.

To work out a proposition of combining all of the inspection work of the city under one head.

To effect cohesion and unity of purpose in all departments of the city government.

Commission Plan at Norwich

Norwich, Conn.—As far as possible under its present charter, the Court of Common Council of Norwich, under Mayor Thayer, has made a start on a commission plan of the city government. This consists in the appointment of an executive committee, composed of seven members of the Council, to which committee all matters are referred without debate, and after investigation by them a report is to be made to the Council. The committee is to hold weekly meetings and report at the Council session monthly. In urging this committee the Mayor declared that it brought the city government to a basis similar to a private enterprise where there is a full knowledge of where money is expended and what becomes of it.

San Antonio Wants Commission Form

San Antonio, Tex.—The Commission Government League of this city is circulating petitions asking the Governor to submit to the special session of the legislature an amendment to the charter of the city authorizing an election to determine whether or not the city shall have commission form; if the vote is favorable the next regular session will be asked to amend the charter so permitting.

STREET CLEANING AND REFUSE DISPOSAL**Police Chief Orders Enforcement of Trash Ordinances**

Kansas City, Mo.—Chief of Police Frank F. Snow has issued the following order at the suggestion of W. E. Griffin, Superintendent of Streets:

"Arrest on view any person throwing paper or other rubbish on the streets or in vacant lots; any person excavating without a permit; any person tacking or sticking cards or posters on sidewalks, fences, poles or in other public places; any person scattering handbills or circulars on sidewalks, streets, porches, yards or private premises or distributing them to passersby; all teamsters who allow dirt or rubbish to fall from their wagons.

"Patrolmen are also instructed to notify all owners or agents of vacant property on their beats that weeds must be cut at once and all rubbish removed; to notify owners of abutting property where earth has washed down onto the street or sidewalk to remove the same immediately; cause the immediate removal of manure piles which may be in the alleys."

Refuse Incinerator Accepted by City

Milwaukee, Wis.—The new \$235,000 refuse incinerator has been formally accepted by the Board of Public Works. It has been turned over to the jurisdiction of the health department. At a meeting which was attended by Mayor Emil Seidel, Health Commissioner W. C. Rucker, City Engineer Charles J. Poetsch and Commissioners A. J. Grundman, J. P. Sherer and L. A. Jansen, it was decided that the plant met the requirements in all ways and that it was entirely up to the expectations of the Board of Public Works. S. A. Greeley, resident engineer for the Hering & Fuller Company, the New York firm which designed the plant, went over results of the tests which have been made. He also filed with the commission a lengthy report. He showed that the designers guaranteed that 300 tons of refuse would be disposed of without odor every twenty-four hours, and that the tests showed that the guarantee had been exceeded by twenty-six tons daily.

MISCELLANEOUS**Portable Bathhouse Opens**

Baltimore, Md.—With six showers and hot and cold water, portable bathhouse No. 1 was opened June 15 at West and Marshall streets by the Public Bath Commission. Last year this bath was located at Chester and Ashland avenues, and for a time at Cross and Race streets. During the season 15,000 people took shower baths in it. The days for women this year will be Tuesday and Friday, when a matron will be in charge. The Public Bath Commission now has three of the portable shower bathhouses and another is under course of construction.

No Auto Permit for Deaf Mute

Denver, Col.—Louis Allen, 16 years old, 661 Franklin street, has been refused a permit to drive an automobile, by the Fire and Police Board, because he is deaf and dumb. His was the first application for a permit ever filed by a mute. The board took the position that the young man's infirmities made it unwise to set such a precedent. "We were afraid that the boy's affliction would be a great handicap to his driving a machine, and might endanger the lives of others," explained a member of the Board. "Yet young Allen appeared to be a splendid chap and bright and intelligent." It was developed that the young man had been driving his father's machine for six months or more, that he had never had an accident and that he was unusually careful, despite his affliction.

Police in Summer Attire

Baltimore, Md.—The Baltimore police appeared June 17 in their summer uniforms, consisting of blue serge blouse, blue cloth trousers and waterproof, cork-lined helmets. The wing collar is tabooed, and in its place the comfortable lay-down collar, with black bow tie, is used. Officers of the motor-cycle division will not wear helmets, but will use military serge caps. Marshal Farnan said that the summer uniform was delayed two weeks on account of the cool, damp weather.

Automobiles for All City Departments

Indianapolis, Ind.—Automobilitis, in its most virulent form, has struck the city administration, and the contagion is spreading to every department. Horses, bicycles and other means of transportation that have been used for years will be abandoned by the various departments, if they can obtain the automobiles they wish. When the Board of Public Works came into office one of its first official acts was to trade its steam touring car for a seven-passenger gasoline touring car, paying \$2,275 difference. Within the last month the Board has purchased three automobiles for Joseph L. Hogue, City Street Commissioner; W. L. Resoner, Superintendent of Street Cleaning, and Frank Hoss, Superintendent of the asphalt plant. Old automobiles were traded in each instance, \$600 to \$700 difference being paid for each of the new machines. The Board said nothing of the purchases at the time, but denies it had any wish to keep the purchases secret. City Engineer Klausmann probably will ask for an automobile truck for the use of his sewer engineering corps. He says the men spend most of their time driving from one place to another with a horse and wagon. He will also ask for two motorcycles to be used by his assistant chief inspector and inspector on public corporation work. Superintendent of Police Hyland has already asked for a gasoline patrol wagon to cost \$4,645, and Fire Chief Coots has asked for an automobile hose wagon to cost \$5,200. Lieutenant Otway Trusler, of the Police Electrical Department, would be contented with an automobile truck. The City Board of Health wishes a gasoline ambulance for the City Hospital, and Building Inspector Winterrowd believes he cannot get along without a gasoline runabout. The Health Board, last year, bought an automobile for its daily inspectors and an electric ambulance for the city dispensary. The Police Department has two automobile patrol wagons and a seven-passenger touring car, while Fire Chief Coots has a touring car and the Fire Department also has a gasoline truck for the fire alarm system. Isidor Wulfson, Inspector of Weights and Measures, and Carl Shank, Market Master, have not applied for automobiles.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Obligations of Contractor—Cost of Work

Schindler vs. Young et al.—A clause in specifications for street work requiring the contractor to observe all the ordinances as to the obstruction of streets, keeping open passageways and protecting the same where they would be dangerous to public travel, and making him responsible for all damages the city may have to pay on his failure to protect the public, does not increase the obligation of the contractor and one subject to an assessment for the work may not complain on the ground that the cost of the work is thereby increased.—Court of Appeal, California, 108 P. R., 733.

Surface Waters—Draining Into Natural Depression

Cech vs. City of Cedar Rapids.—An owner of property abutting on a street cannot prevent a city in improving the street from collecting surface waters flowing onto the highway through a culvert under a railroad right-of-way, and discharging it through a culvert under the highway onto his land, where the water coming from the highway naturally flowed through a natural depression on his land and the only effect of the culvert was to discharge the water which would otherwise be distributed over the highway directly on his land, and this is so especially in view of Code Supp. 1907, providing that owners of land may drain their lands into natural depressions without liability.—Supreme Court of Iowa, 126 N. W. R., 166.

Building on Park Property

State ex rel. Johnson et al. vs. Brown, City Comptroller.—The Board of Park Commissioners of the city of Minneapolis has the power to erect a dwelling house upon park property, to be used by the Park Superintendent and by his family as a residence, and to be further used as an office by the Park Superintendent and his associates.—Supreme Court of Minnesota, 126 N. W. R., 408.

Street Improvement Assessment—Objection

Rider et al. vs. Parker-Washington Company et al.—Where certain property owners were given a rebate on their assessments for signing a petition to have the improvement made, for which tax bills were issued, the fact that plaintiffs stood by and made no objections until the work was being done under the contract did not estop them from denying validity of the tax bills subsequently issued therefor.—Kansas City Court of Appeals, Missouri, 128 S. W. R., 226.

Liability for Damages Sustained on Highway

Dodge vs. Town of North Hudson.—New York Highway Law, providing that every town shall be liable for all damages to person or property sustained by reason of any defect in its highways or bridges existing because of any neglect of the Commissioner of Highways of such town, created a liability of the town for negligence in relation to highways and bridges which did not exist at common law.—United States Circuit Court, 177 F. R., 986.

Franchise—Regulation—Railroad in Street

Southern Pacific Company vs. City of Portland.—A city ordinance prohibiting a railroad from operating steam locomotives and freight cars along a street on which the company had been authorized to construct its road, subject to regulatory provisions subsequently adopted, did not impair any of the railroad's vested rights, and was not objectionable as an arbitrary exercise of the city's police power.—United States Circuit Court, 177 F. R., 558.

Debt Limit—Increase

Chostkov et al. vs. City of Pittsburg et al.—Where a city's debt limit is more than 2 per cent of the assessed value of its taxable property, and part of the debt has been authorized by vote of the electors, such part may be deducted from the gross amount, and the remainder, if under 2 per cent, may be increased to that amount without special authorization by the electors.—United States Circuit Court, 177 F. R., 936.

Commissioner of Highways—Fixing Salary

Hildreth vs. City of New York.—Greater New York Charter, section 455, authorizing the Commissioner of Bridges, when thereto authorized by the Board of Estimate and Apportionment and Board of Aldermen, to employ a consulting engineer skilled in bridge construction, and Laws 1897, providing for the establishment of a public drive and parkway as an extension of Riverside Drive, did not authorize the Commissioner of Highways to contract with an engineer to furnish plans and specifications for the drive and superintend a part of the work for compensation based upon a percentage of the cost, until such plans and specifications were approved by the Board of Estimate and Apportionment, and such contract was not the fixing of the salary of a consulting engineer, within section 456.—Supreme Court of New York, 122 N. Y. S., 1053.

Contractor's Bond—Subcontractor

City of Philadelphia vs. Wiggins et al.—Where an ordinance provided that any person engaging in a city contract should give a bond conditioned that such contractor will pay all persons supplying him with labor and materials, a bond incorporating the provision to the ordinance is available to protect a material man furnishing materials used in the work to a subcontractor.—Supreme Court of Pennsylvania, 76 A. R., 31.

Contract for Water Works—Power to Make Alterations

W. W. Cook & Son vs. City of Cameron.—A contract for the construction of a city water works system according to specifications authorizing the City Engineer to make alterations in the line, form, grade, or dimensions of the work does not confer on the Engineer power to change the general plan of the improvement, but only power to make incidental changes in carrying out the plan, and, where the Engineer directs the contractor to use for a pipe line another and longer route, necessitating the use of additional iron pipe and excavation in rock, the contractor may refuse, but, where he does the work ordered without any written contract as required by the Revised Statutes of 1899, he cannot recover therefor.—Kansas City Court of Appeals, Missouri, 128 S. W. R., 269.

Water Rights—Artificial Channel

Taggart vs. Town of Jaffrey.—Where the waters from a pond were diverted from their natural channel over sixty years ago, and have since flowed in an artificial channel then prepared for them, the change being intended to be permanent, and the new channel for all legal purposes a natural one, an owner of land on the artificial channel was entitled to the protection of his water rights, including the right to a sufficient flow of water to operate a hydraulic ram to force water to his buildings, on the theory of dedication, prescription or estoppel.—Supreme Court of New Hampshire, 76 A. R., 123.

Injury to Runaway Horse—Liability of City

City of Harrodsburg vs. Abram.—Where an unused fire engine had been left standing by the city near the curb in a street 70 feet in width from curb to curb so that there was left for the use of the traveling public considerable more in width of the highway than was afforded by the average street when entirely unobstructed, and such portion was reasonably safe for ordinary public travel, the city was not liable for injuries to a runaway horse frightened by something for which the city was not responsible and not by the engine, which horse in the daytime collided with the engine while in plain view.—Court of Appeals of Kentucky, 127 S. W. R., 758.

Injury from Defective Walk

Curran vs. City of St. Joseph.—Where a short street had been accepted by a city, and a sidewalk had been put down on the north side thereof by property owners, and a portion of the street had been improved for a roadway, and three houses were built on the south side of the street, and a path extended past the houses, upon which the owners had put cinders, the city is not liable for an injury to a pedestrian, who, while walking along the cinder path, fell into a gully which had been washed out across the path, as the south side of the street had not been improved by the city.—Kansas City Court of Appeals, 128 S. W. R., 203.

NEWS OF THE SOCIETIES

Mayors' Association of Connecticut.—Invitations have been sent out by J. Milton Coburn, of South Norwalk, Secretary of the association, for a meeting June 30 at Meriden. Those in charge of the event in Meriden have arranged an enjoyable program for the visitors. An automobile ride about the city, taking in Hubbard Park, the State school, Undercliff Sanatorium, the manufacturing district and other points of interest and a demonstration of the automobile chemical fire engine, followed by a luncheon, are among the features arranged for the day. The business session will be held at 11:30 o'clock in the forenoon.

Engineers' Society of Western Pennsylvania.—The monthly meeting of the society was held in its new quarters in the Oliver Building, Pittsburgh, June 21. The paper of the evening, on "Low Pressure Steam Turbines," was presented by F. E. McKee.

Montana Good Roads Association.—Two hundred and fifty delegates, representing every county in the State, gathered at the Babcock Theatre, Billings, June 16, and launched for the first time in Montana the good roads movement. W. B. George, temporary chairman of the convention and father of the good roads movement in Montana, called the convention to order. He declared that the convention marked the beginning of an era of importance in the development of the State's resources. He pointed out that to bring about ideal conditions good highways must permeate every nook and corner of the State, and as evidence of the value of highways in its upbuilding he compared them with railroads through which the great Northwest has attained its wonderful development. He advocated a great highway across the State with trunk roads from the North and South connecting with the main artery, and pointed out that adjoining States would follow the example, and the result would be of great benefit to the settlement and development of Montana. Harry Yeager was then chosen as chairman of the convention, and W. B. Rhodes, of Kalispell as secretary. Mayor H. J. Thompson welcomed the delegates, and spoke of the need of better means of communication between the rapidly growing cities of Montana. Lieutenant-Governor W. R. Allen responded to the Mayor's address, and spoke of the lack of uniform good road laws, each board of County Commissioners following a system of its own. He favored placing road work under the charge of a single official, the County Surveyor. He favored the plan of having each county finance its own improvement, but said that the State, through its Agricultural College, could render valuable assistance in the way of advice and testing road materials.

Endorsement of the plan of employing convict labor upon public highways, outside of incorporated cities and towns, was voiced by Curtis Hill, State Highways Engineer of Missouri, in an address on "Convict Labor Upon Highways." Mr. Hill made his remarks the more effective by showing on a screen a number of views of roads built by convicts in his State. He urged the use of convict labor, not from a standpoint of economy, but more from necessity. The only alternative in securing public highways, he asserted, was the securing of

funds to carry on the work by levying a tax upon the traveler or his vehicle, a poll tax or a property tax. Mr. Hill declared that convict labor did not interfere with honest skilled labor, in that the work done by the convicts would probably never otherwise be done because of the fact that convict labor made it possible. He mentioned a number of States where convicts are employed upon the highways, pointing to their successes in support of his argument. Governor Norris supported the scheme in his address "Financial Problem of Road Building." Prof. F. D. Linfield, Director of the Montana Agricultural Experiment Station at Bozeman, spoke at length on the "Value of Good Roads to Farmers," and W. A. Selvidge, President of the Billings Chamber of Commerce, delivered an address on "Good Roads from a Business Man's Standpoint." Other topics discussed were: "Primary Highways," G. W. Cooley, State Engineer and Secretary Highway Commission, St. Paul; "Some Suggestions for Good Roads," James F. Voshell, Highway Engineer, United States Office Public Roads, Washington, D. C.; "The Financial Problem in Road Building," Edwin L. Norris; "Good Roads Without Money," D. W. King, "Knight of Good Roads" and inventor of the split-log drag; "Good Roads from an Engineer's Standpoint," W. G. McMahon, Montana State Society of Engineers; stereopticon exhibition and lecture, showing bridges and roads, George W. Cooley, St. Paul, Minn.

Arkansas Valley Society of Arts and Sciences.—A well-attended meeting was held at the Commerce Club rooms, Pueblo, Col., June 18.

A paper was read by R. M. Hosea on "Filtration of Arkansas River Water." He said in part:

The cost of constructing and operating filters for removal of sewage pollution from lake or river waters is not materially affected by the degree of pollution and hence it usually proves true that water cannot be brought from mountain sources at anywhere near the smaller expense incurred in a filtration plant within close range of a city. This would undoubtedly be true in this vicinity, especially when considering the large per capita consumption and the probable large increase required in the future, which can be more easily and cheaply met by an enlargement of a filtration plant than by an increase of conduits or pipe lines.

The standard of filtered water in England and Germany is 100 bacteria per C. C. and any water filtered within this limitation is considered fit for drinking and domestic purposes. The early requirements of Philadelphia was 60 and it is rare that this amount is reached. A. C. C. is about 20 to 30 drops from a glass dropping tube, or about the contents of a No. 8 sewing thimble. These figures mean (and the test of merit of any filtration plant means) a great reduction of typhoid fever cases. In those parts of Philadelphia where the water is used it effects an 80 per cent reduction in the typhoid fever rates and of the remaining 20 per cent must be attributed to drinking water outside of Philadelphia as well as sources of infection other than water.

Our river water is softer than any other available source except a distant mountain supply, and with sanitary filtration it can be kept clear and free from disease germs. Thus the supply is under our control and not subject to careless or wilful contamination.

There will be no more meetings of the society until August, when plans will be made for assisting in entertaining Pueblo's guests during the Irrigation Congress and helping to make the Congress a success. The matter of securing a member of the society to take part in the program of the Irrigation Congress will be taken up at once by the Board of Control.

Municipal League of Indiana.—Over 200 delegates attended the twentieth session, which was held at Richmond June 21-22. Joseph T. McNary, of Logansport, President of the League, called the first meeting to order Tuesday afternoon and made a few remarks expressing his felicitation to the convention and introduced the Rev. Thomas T. McNary, of the Second Presbyterian Church, who pronounced the invocation. The city's greeting was expressed by Mayor W. W. Zimmerman. He told how glad Richmond was to have opportunity to act as host to the representatives from all the leading cities of the State and promised the city would do its share in the way of providing entertainment. The Mayor turned over the keys of the city with right good grace and made all strangers feel they were welcome. The response was by J. Fred France, former Mayor of Huntington. The preliminaries having been disposed of, the convention took up the usual routine. The call of the roll of the cities showed delegates present from nearly all that hold membership. The query box developed interesting information. "How Should School Boards Be Elected and How Controlled?" was the subject of a paper by Milo Freightner, Mayor of Huntington. The discussion was led by State Senator F. M. Kistler, a former City Attorney of Logansport.

On Wednesday morning the report of the meeting of the League of American Municipalities at Montreal, Canada, was presented by Joseph T. McNary, President, of Logansport. The query box discussion and the report of the treasurer followed. The subject, "Is Government by Commission the Best Form of Municipal Government?" was treated by John MacVicar, Secretary of the National League of American Municipalities and one of the Commission of Des Moines, Ia., and the discussion was led by Hon. Lawrence Becker, Mayor of Hammond. Senator Will R. Wood, of Lafayette, spoke on "Have the Amendments of City's and Town's Laws Been Beneficial?" and the discussion was led by H. J. Curtis, City Attorney of Gary. Charles R. Johnson, Councilman, of Madison, spoke on "Collection and Disposal of Garbage," and the discussion was led by C. B. Cooper, of Columbus.

On Wednesday afternoon reports of different sections of the league were received, and there was also query box discussion. Other subjects discussed follow: "Sanitation by Commission and Sewage Disposal," Dr. J. N. Hurty, Secretary of State Board of Health, of Indianapolis; discussion led by A. J. Hammond, ex-City Engineer, of South Bend. "Is It Profitable for Cities to Own and Operate Their Own Electric Lighting, Water Works, Gas and Heating Plants, and Should the Cities Grant Franchises to Private Corporations for Same?" A. M. Gardner, City Attorney, of Richmond; discussion led by R. R. Johnson, of Logansport. "Public Utility Commission," John A. Gavitt, City Attorney, of Hammond; discussion led by Wm. H. Bartel, Richmond, "What Part, if Any, Should Cities Pay Toward Track Elevation?" Henry G. Hogan, City Attorney, of Fort Wayne; discussion led by S. L. Shank, Mayor of Indianapolis. "Are the Benefits of the Public Accounting Law Equal to the Costs?" William A. DeHority, of Indianapolis; discussion led by Hon. Ernest E. Cloe, City Attorney, of Noblesville. After the meeting there was an entertainment, and a banquet by Richmond Commercial Club at Y. M. C. A.

Crawfordsville was chosen as the next place of meeting, and it was decided not to change the date from June to the third week in July. Officers were chosen as follows: Mayor Lemuel S. Darrow, Laporte, president; James E. Burke, Jeffersonville, first vice-president; John Thom, Noblesville, second vice-president; Loring W. Mellette, Elwood, treasurer; Fred B. Robinson, Crawfordsville, secretary.

The following chairmen of the various departments were named; James E. Burke, Jeffersonville, executive; I. A. Gorman, Richmond, police; G. W. Shafer, Princeton, legislative; Arthur D. Cunningham, Lafayette, legal; W. C. Howard, Tipton, clerical; H. H. Thompson, Logansport, board of public works; Benjamin Shoecraft, Laporte, civic improvement.

County Commissioners and Good Roads Association of Florida.—The meeting was called to order at Gainesville, by President J. W. White, of Jacksonville. The address of welcome was delivered by Robert E. Davis, and Secretary C. L. Bittinger, Ocala, responded. An automobile ride over some of the hard roads in and around Gainesville was tendered by the Gainesville Automobile Club. Papers were presented and discussed on the following topics: "Sand and Clay Roads," by O. P. Cannon; "Roads and Road Material of the State," by Prof. N. H. Cox; "Use of Convicts on the Public Roads," by John G. Dampier; "Systematic Grading, Repair and Upkeep of County Roads," by J. M. Mathews. Gov. Gilchrist addressed the delegates and told of the importance of good roads and of their material benefit to the community. He also spoke in favor of the employment of convicts on the roads of the State. His views were listened to attentively.

Association of Health Officers of Tidewater, Virginia.—One of the first objects of the association which was recently organized will be the eradication of mosquitoes and the suppression of the fly. In order to accomplish this the committee having the matter in charge, composed of Dr. C. P. Westentaken, Norfolk; Dr. Vernon Brooks, Portsmouth, and Dr. T. J. Prethro, Newport, intend to enlist the co-operation of large corporations, of business enterprises and citizens generally. They take the ground that mosquitoes can be exterminated by proper measures.

Iowa District Gas Association.—At the annual convention, Sioux City, June 7, President George W. Waring, in the annual presidential address, advocated the co-operation of gas interests with the public looking to the formation of public service commissions in Iowa, Nebraska and South Dakota. He was of the opinion that State public service commissions are here to stay, and that States will gradually provide for them, and that corporations have nothing to fear from them if they are constituted along right lines. C. W. Fair, Oskaloosa, read a paper on the "Gas Company's Policy Toward the Public." At the business session the following officers were elected: Austin Burt, president; G. W. Clabaugh, Omaha, first vice-president; C. W. Fair, Oskaloosa, Ia., second vice-president; G. I. Vincent, re-elected secretary-treasurer; George W. Waring, Omaha, affiliation representative in American Gas Institute.

Four-County Firemen's Association.—About 4,000 uniformed firemen marched in the thirteenth annual parade of the association at Bethlehem, Pa., June 18.

New York Mayors' Health Conference.—Forty-two of the forty-six second and third-class cities of the State were represented at the health conference of Mayors, held at Schenectady June 23-24, between two and three hundred delegates attending the first gathering of its kind ever held in this State. The first session was opened at the Mohawk Theater, with Mayor Charles C. Duryee, of Schenectady, the father of the conference, in the chair, and he gave hearty commendation to the Health Department of the municipality as the one department whose sole duty is the protection of the life of the community, and said the time has come when it should rank first, as in the title of his paper: "The Protection of Life and the Protection of Property—The Health Inspector, the Policeman and the Fireman." Prof. Frank S. Hoffman, of Union College; Mayor Seeley Conover, of Amsterdam, and Assistant Health Commissioner Shaffer, of Buffalo, discussed the paper. Mayor Duryee appointed as a Committee on Resolutions Mayors P. O'Malley, of Geneva; Jas. B. McEwan, of Albany; John Walsh, Acting Mayor of Poughkeepsie; Edward Schoeneck, of Syracuse, and F. J. Nelson, of Hornell, and referred to them a number of resolutions, which were later reported and adopted by the conference.

"The Prevention of Disease by the Elimination of Dust" was the subject of the next address, delivered by Frederick L. Hoffman, Statistician of the Prudential Life Insurance Company, who, in the course of his remarks, said that the problem of dust prevention on roads and highways is in a fair way of being solved by the use of water and salt solutions, the use of tar and oil binders, and the use of asphalt emulsions and similar preparations, none of which is ideal, but all of which contribute more or less towards the diminution of the dust menace, with consequential beneficial results to the public health. The general discussion of this subject was opened by Mayor John J. Irving, of Binghamton. Others who spoke were Mayor Patrick O'Malley, of Geneva, and Mayor Wesley M. Berst, of Gloversville.

"Housing and Health in Cities" was the subject of an address by Lawrence Veiller, secretary of the National Housing Association, who condemned the practice of Health Department officials in waiting in their offices for complaints. "Now, that is not a good thing to do," he said, "for many foreigners do not even know a Health Department exists, others are not educated enough to make a complaint, while others are afraid of their landlords. Every city should have a systematic inspection. Have men going about the city looking for trouble. Let them go into cellars, back yards, on roofs, in attics and in fact all through houses, seeking trouble." Dr. William H. Snyder, Health Officer of Newburgh, opened the discussion, to the end that Mr. Veiller was recalled for the purpose of giving further facts about the housing proposition, which proved very interesting. This ended the morning session, and the delegates and guests proceeded to the restaurant at the plant of the General Electric Company, where luncheon was served.

In the lecture room of the Fire Department Building at the General Electric Company's plant the afternoon session of the conference was convened at 2 o'clock, with G. E. Emmons, general manager of the General Electric

Company, presiding. Rev. George R. Lunn, D. D., pastor of the People's Church of this city, spoke on "What People Can Do Through Their Municipality." Rt. Rev. Mgr. J. L. Reilly, of St. John's Church, Schenectady, followed Dr. Lunn with a brief address on "The Moral Responsibility of the Community for the Protection of Health and Life," while the main address of the session was given by Prof. C. E. A. Winslow, associate professor of biology, College of the City of New York, and curator of public health, American Museum of Natural History, New York City. His subject was "Waste of Life Capital in American Industries." J. D. Pennock, technical assistant of the Solvay Process Company, Syracuse, discussed the paper in an interesting manner.

The evening session was also held at the Mohawk Theatre, with Albert R. Kessinger, Mayor of Rome, presiding. Dr. Luther Halsey Gulick, President of the National Playground Association, spoke on "Municipal Aspects of Rest and Recreation." He said there are three departments relating to recreation, the school department, with its athletic leagues and recesses, the city park, and the streets. "It seems obvious that the streets are for traffic," he said, "but there is no city in the Union, no matter how rigid the laws, where the children can be kept from playing in the streets. There are traffic streets where children should be kept away. There are other streets which are social function streets where there is little traffic and there is no reason why children should not be allowed to play in them. Stop the abuses but allow the social use of the streets. Playgrounds can never be made to care for all the children, and the streets must be used. There should be an unofficial body in every community to look after some of these things and support the city in arranging them." A. Harrison, Mayor of Johnstown, and Dr. M. E. Leary, of the Rochester Public Health Association, voiced their views on the subject. Dr. Livingston Farrand, Executive Secretary of the National Association for the Study and Prevention of Tuberculosis, spoke on "Municipal Duties in the Conquest of Tuberculosis: What Should the Budget Cover?" and said: "There is one important matter which should be looked after. The law says that physicians should report to the Health Officer all cases of tuberculosis and this law is not being enforced. It should be and where it is violated the penalty should be exacted." Both Dr. Charles F. Clowe, Health Officer of Schenectady, and Dr. Charles R. Mahady, Health Officer of Rome, followed this address with short discussions of the problem. The session adjourned shortly before 10 o'clock and the visitors went immediately to the home of the Knights of Columbus for the smoker. Homer Folks, Secretary of the State Charities Aid Association, spoke in place of Senator Robert L. Owen, of Oklahoma, on Thursday, his subject being: "The Organization and Work of an Effective Health Department." Prof. Walter F. Willcox of Cornell University spoke on "Methods of Determining Economic Losses from Preventable Diseases," and placed the economic loss for tuberculosis for the nation at between \$450,000,000 and \$650,000,000, while Dr. H. D. Pease, of the Lederle Laboratories, New York City, placed the economic loss in New York State at about \$20,000,000. Prof. C. E. A. Winslow, of the College of

the City of New York, in his discussion, said the two things of tremendous importance, and the two things which deserve the greatest attention of the Health Officer, are tuberculosis and infant mortality, and Charles J. Prest, health officer of Waterford, urged more liberal appropriations for the health department.

Prof. Charles Zueblin, of Harvard, spoke on "Obligations and Opportunities of Local Officials," and urged greater co-operation in all its forms.

It was decided to hold a conference annually. Poughkeepsie was chosen for the meeting place next year, and an advisory committee, headed by Mayor C. C. Duryee, of Schenectady, was selected to perfect arrangements, and "that the conference of the Mayors of 1911 be devoted largely to a consideration of the essential framework of municipal government, and that speakers be invited who have had experience in the usual plan of municipal government, viz., the plan of separating the legislative and executive functions, centralizing the former in the Mayor, and vesting the latter in a board of aldermen or common council, or both; and also speakers who have had experience under the more recent form of municipal administration, known as government by commissions which vests both executive and legislative functions in a small paid commission."

It was also resolved, That the Mayors and other official delegates of the 42 cities here represented urge upon all municipal authorities throughout the State the following administrative measures and pledge ourselves to endeavor to secure their adoption in their respective localities:

1. To secure for municipal health authorities appropriations from the municipal resources more nearly comparable to the importance of the work imposed upon them by statute, by the development of sanitary science and by the demands of public opinion.

2. To secure for the position of Health Officer such compensation and such tenure of office and such complete control of the departmental work, independent of his political views and affiliations, and independent of political changes in the administration of the municipality, as will attract the most competent physician, specially qualified by experience and study of sanitary science, and retain him in office during good behavior and efficient service.

3. To secure prompt and complete compliance with all the provisions of the tuberculosis law of 1908, including a complete register of causes of tuberculosis through the co-operation of the medical profession; the thorough disinfection, cleansing or renovation of premises left vacant by the death or removal of tuberculosis patients; and the efficient and sanitary oversight either by the attending physician or by the health officer of all households in which tuberculosis exists.

4. To establish in each municipality, preferably under the direct control of the Health Department, at least one free tuberculosis dispensary, with one or more visiting nurses and with supplies and facilities for the care, treatment and cure of tuberculosis patients.

5. To aid in securing hospital provision for persons having tuberculosis, preferably in accordance with the provisions of the laws of 1909 authorizing the establishment of county hospitals, or, in the event that a county hospital cannot be secured, under direct control to the end that the hope, "No uncared for tuberculosis in 1915," may become a fact.

6. To provide such play-grounds and recreation facilities as will permit and encourage every child and adult to secure out-of-door recreation and exercise suitable to his needs.

7. To protect the supplies of food offered for public sale from contamination, and to prevent the sale of adulterated, decayed or otherwise unfit articles of food.

8. To secure a healthful and adequate water supply.

Calendar of Meetings

June 30. Mayors' Association of Connecticut.—Annual Meeting, Meriden.—J. Milton Coburn, South Norwalk, Secretary.

June 27-30. American Institute of Electrical Engineers. Annual Convention, Jefferson, N. H.—R. W. Pope, Secretary, 33 West 39th st., New York City.

June 28-July 2. American Society for Testing Materials. Annual Meeting, Atlantic City, N. J.—Edgar Marking, Secretary, University of Pennsylvania, Philadelphia, Pa.

June 30-July 1. American Society of Heating and Ventilating Engineers.—Semi-annual Meeting, St. Louis, Mo.—W. M. Mackay, Secretary, P. O. Box 1818, New York, N. Y.

June 30-July 1. Boards of Health of Ohio.—Eleventh Annual Conference, Cleveland, O.—Dr. C. O. Probst, Secretary State Board of Health, Columbus, O.

July 26-28. Ohio Electric Light Association.—Annual Convention, Cedar Point, Ohio.—D. L. Gaskill, Secretary, Greenville, Ohio.

July 26-27. Western New York Volunteer Firemen's Association.—Tenth Annual Convention, Lockport. Charles F. Foley, Secretary, Lockport, N. Y.

July 28-30. National Good Roads Congress.—Annual Convention, Niagara Falls.—Arthur C. Jackson, President, Chicago, Ill.

August 17-20. National Firemen's Association.—Thirteenth Annual Convention, Rochester, N. Y. Bert Fisher, Secretary, 3812 Wabash ave., Chicago, Ill.

August 23-26. League of American Municipalities.—Annual Convention, St. Paul, Minn.—John MacVicar, Secretary, City Hall, Des Moines, Ia.

August 23-26. International Association of Fire Engineers.—Annual Convention, Syracuse, N. Y.—James McFall, Secretary, Roanoke, Va.

September 6-9. International Association of Municipal Electricians.—Fifteenth Annual Convention, Convention Hall, Rochester, N. Y.—Frank P. Foster, Secretary, Corning, N. Y.

September 21-23. New England Water Works Association.—Annual Meeting, Rochester, N. Y.—Willard Kent, Secretary, Narragansett Pier, R. I.

October 10-14. American Street and Interurban Railway Association.—Annual Convention, Niagara Falls, Ontario.—H. C. Donecker, Secretary, 29 West 39th st., New York, N. Y.

October 11-16. American Society of Municipal Improvements.—Seventeenth Annual Convention, Erie, Pa.—A. Prescott Folwell, Secretary, 239 W. 39th St., New York, N. Y.

November 14-18. National Municipal League.—Annual Meeting, Buffalo, N. Y. Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.

PERSONALS

ALLEN, E. O., Chief of Police of Shreveport, La., has resigned.

CONWAY, G. R. G., Monterey, Mex., recently Chief Engineer Monterey Water Works and Sewer Company Station, has opened an office in the Pauken Building, Spokane, Wash., where he will practice hydraulic and sanitary engineering.

DINSE, Dr. A. J., Aberdeen, S. D., has been appointed by the City Council to inspect all foods and liquors sold in the city, at a salary of \$50 per month.

EXUM, CULPEPPER, Birmingham, Ala., has been nominated for Mayor of Greater Birmingham at the primary election. At the same election the Commission Form of Government was endorsed by a large majority.

FOLEY, JAMES D., Milwaukee, Wis., has been appointed Secretary and Chief Engineer of the Board of Fire and Police Commissioners.

FOSTER, GEORGE B., Chicago, Ill., has

been appointed Chicago sales manager for the Wisconsin Engine Company.

FULCHER, W. C., Building Inspector of Knoxville, Tenn., has resigned on account of removing his residence to the State of Texas. Mr. Fulcher had also previously served the city as Mayor, Member of the Board of Public Works, and Alderman.

HAMMOND, CHARLES A., Mt. Vernon, N. Y., has been appointed Manager of the Sewage Disposal Plant at a salary of \$2,250 a year.

HARRIS, ANDREW J., Chief of the Fire Department of Tampa, Fla., for twenty years, and a member of the fire-fighting force for thirty years, dropped dead of acute indigestion at No. 5 fire station last week.

HIGGINS, DANIEL F., North Tonawanda, N. Y., has been appointed Assistant Superintendent Public Works.

HIGHAM, CHARLES, Middletown, N. Y., has been unanimously re-elected Chief Engineer of the Fire Department.

HUGHES, P. H., Palestine, Tex., has been appointed Fire Marshal.

LYMAN, DAVID R., Assistant City Engineer of Louisville, Ky., has been promoted to City Engineer by the Board of Public Works; he was given a certificate of ability by the engineers of the Gas Company, Sewer Commission and the Board of Water Works, who conducted an examination of applicants for the Engineering. His average is said to have been so high that it was almost perfect.

MEDLAR, JOHN S., Gloucester, Mass., has been elected License Commissioner to succeed James H. Stapleton after City Solicitor John J. Cunningham had ruled that the appointment rests no longer with the Mayor under its new charter, but with the Municipal Council as a whole.

PROVETT, JAMES K., Belleville, N. J., has been appointed Chief of the Fire Department.

SMITH, CHARLES W., Hillsdale, Mich., has been appointed Chief of the Fire Department, succeeding F. P. Welch.

SMITH, J. L., Mayor of Johnson City, Tenn., had three ribs broken by being run over by a wagon with which his buggy collided.

SWIGGETT, E. M., Utica, N. Y., has been appointed Park Superintendent, succeeding A. C. Comey, who goes to Milwaukee to fill a similar position.

New Mayors of Virginia Cities

Amherst—C. L. Scott, without opposition. Bedford City—Mayor Paul Bargaman and Nelson Sale, tie vote.

Blacksburg—Dr. F. W. Eheart over G. W. Matier.

Boykins—E. D. Priddy.

Bridgewater—H. C. Hale over J. S. McLeod.

Broadway—J. W. Basore.

Brookneal—J. E. Webb.

Courtland—W. J. Sebrall, Jr.

Culpeper—H. C. Burrows, re-elected over W. A. Bickers by 5 votes.

Dayton—J. W. Keiter, re-elected.

Elkton—A. S. Kyger, re-elected.

Franklin—C. C. Vaughan.

Harrisburg—Col. O. B. Roller, re-elected over Recorder A. V. Lewis.

Ivor—R. H. Rawls.

Mt. Crawford—C. H. Funkhouser.

New Market—C. W. Cushman over Mayor Jos. M. Myers by 3 votes.

Pearisburg—C. T. Fainter.

Pulaski—John T. Loving, who was defeated by 8 votes last year by D. S. Pollock, over O. C. Brewer, by 12 votes.

Salem—J. S. Persinger over Mayor W. W. McClung.

Strasburg—E. M. Borum over L. Hurn.

Shendun—J. M. Bell.

Timberville—Jacob R. Garber.

Virginia Beach—W. J. Wright over Sidney Botts.

Woodstock—James H. Rodeffer, re-elected over M. E. Stickley by 4 votes.

Norfolk—Thomas S. Purdie, Chairman of the Board of Control for two-year term by 1,998 votes over Hugh N. Page, who received 571, and W. H. Gwinn, 86 votes; Wm. M. Hannan was re-elected for six-year term as member of Board without opposition.

TRADE NOTES

Cast-Iron Pipe.—Chicago: There is a steady run of small orders. Quotations: 4-inch, \$28.50; 6 to 12-inch, \$27.50; 16-inch and up, \$26.50. Birmingham: Business is mostly in small lots, but the aggregate is satisfactory. Mills are reported to have four months of orders on hand. Quotations: 4 to 6-inch, \$23; 8 to 12-inch, \$22; over 12-inch, average, \$21. New York: Demand is light and indications point to a quiet summer. Quotations: 6-inch, carload lots, \$25 to \$25.50.

Lead.—The market is stronger. Quotations: New York, 4.375c.; St. Louis, 4.25c.

New Blasting Powder.—"Jexite," the new explosive manufactured by the National Powder Company of Spokane, will be adopted for use on all four of the State aid roads now in course of construction in the county. This announcement was made by Ilse & Elliot, the contractors. The decision to use the product of the local factory in preference to dynamite or black powder came as the result of a test made on the Regal road. "We are convinced that the powder is fully as powerful as dynamite and safer to handle," said the contractors, "and as the cost is no greater than other brands, we intend to give the local manufacturers the preference." Preparations are being made for a test of the powder for city work. William Cole, who has the contract for work on Third avenue, is having a hole prepared near Liberty Lake for a blast. The backers of the powder company are also planning to secure the adoption of the powder in the State convict-operated rock quarries, including the one which is to be opened shortly near Marshall Junction.

Fuel Economizer.—The Green Fuel Economizer Company, Matteawan, N. Y., suffered a \$40,000 fire loss June 17, one of its buildings being totally destroyed. Plans are already under way for reconstructing, and arrangements have been made for keeping delivery promises on equipment that has been ordered, so the company's output will not be curtailed.

Corrugated Metal Culverts.—The Kentucky Culvert Manufacturing Co., Buechel, Ky., has issued a catalogue which should be of interest to builders of highways, railroads and other construction in which culverts are used. This company manufactures the American ingot iron culvert and claims that the material used in their manufacture is not the common "commercial" or "tin-shop" grade of galvanized steel, but a sheet that takes an entirely different method of manufacture from the time the ore goes into the melting furnace until the sheet receives its final galvanizing and hot rolling.

Concrete Machinery.—The Miracle Pressed Stone Co., Minneapolis, Minn., has sold out its interests to the Marsh Co., 970 Old Colony Building, Chicago, Ill. The two best known names in the realm of concrete machinery to-day are Miracle and Marsh, and the purchase of the Miracle interests by the Marsh Co., brings both names before the public more vividly. A more natural sequence of interests could not have been conceived. The Marsh Co. now offers to its patrons both new and old, the famous Miracle line of machinery, forms, molds, cement workers' tools, etc., and claims to lead the world as a manufacturer of concrete machinery.

Auto Steam Fire Engine.—Birmingham, Ala., has just awarded a contract to the Nott Fire Engine Company, Minneapolis, Minn., for rebuilding one of their Ahrens engines from horse-drawn machine to motor-propelled steam fire engine. This is the first city in the United States that has taken this step, and many other cities will watch with interest the step taken by the progressive city of Birmingham. Chief Bennett of the Fire Department of Birmingham is very enthused over motor apparatus, and the Nott Company took this matter up with Chief Bennett and had no trouble in getting the contract. It will be the first motor-propelled steam fire engine in the United States. The motor will be 90 horsepower—valveless type cylinders specially designed and built for the purpose in the factory of the Nott Fire Engine Company, of Minneapolis. The Nott Fire Engine Company guarantees the motor attachment to be of great enough horsepower to pull the engine at a speed of as high as 30 miles an hour—90 brake-test horsepower will easily do this work—and, in fact, the Nott Company claims that it will have to gear the engine down so as to go no higher than 30 miles an hour. A little later photographs and cuts of this machine will appear in this journal.

Contractors' Supplies.—The Contractors' Supply and Equipment Company, Denver, Col., has published its first catalogue, containing descriptions and illustrations of the main lines of equipment which the company carries. These include castings for all kinds of elevator graders, disc plows and grade belt, tents, crushers, rock drills, lubricator valves, lug drill steel, scrapers, lighting appliances, Calahan-Walton dray line excavators, wire rope, supplies for wagon repairs, forges, jacks, wheelbarrows and small tools. In order to serve patrons better the company has arranged to carry stock in Omaha as well as Denver.

Trolley Car Headlight.—The Tribe Automatic Headlight Company, Worcester, Mass., is organizing to manufacture a headlight for use on electric cars, the feature of the device being that its ray is kept on the track when rounding curves as well as on straight stretches. The inventor is George T. Tribe, of that city.

Stone Crusher.—The Yosemite Stone Company, Exchequer, Cal., is installing a No. 8 Gates crusher and a 10-ton locomotive crane built by the Union Iron Works.

Water Tube Boilers.—The Barberton, O., works of the Babcock & Wilcox Company are crowded to their utmost capacity on orders from all parts of the West, and even with the increased facilities to be provided there will be difficulty in keeping up with the demand.

Water Softening Plants.—W. B. Scaife & Sons, Pittsburg, Pa., are finding a good market in the South, as well as elsewhere through the country for filtration and water softening plants used both by municipalities and industrial establishments. The field there developed somewhat later than in most sections, but now shows great promise for the future.

Fire Apparatus.—The Seagrave Company, Columbus, O., maker of fire apparatus, is having plans prepared for a large addition to its plant. A two-story brick and stone building will be erected, 100 x 114 feet. A new office building will also be built.

Garbage Incinerator.—The Power Specialty Company, New York, N. Y., which recently put in operation at Milwaukee, Wis., one of the largest incinerating plants in the country, has taken the contract for a 60-ton destructor for the city of Montgomery, Ala. The heat generated in the process will be used under boilers for power purposes, probably in connection with city pumping. The Power Specialty Company operates under the patents, and with the benefit of the experience of the Heenan & Froude Destructor Company, an English concern, which has had many years' trial of plants abroad to guide it in determining upon its latest designs.

Coal Tar Products.—The Barrett Manufacturing Company has been granted a permit to build a two-story shop and office, 30 x 74 feet, and a one-story addition of the same size to its plant in the Thirty-sixth Ward, Philadelphia, Pa.

Contractors' Tools.—The Mound Tool and Scraper Company has moved its home office in St. Louis from 1606 North Broadway to the new plant at Seventh and Hickory street, St. Louis.

Change of Address.—The Boston office of the Crocker-Wheeler Company has been changed from 4 Post Office Square, Boston, Mass., to Boston Safe Deposit and Trust Company Building, Devonshire and Arch streets, Boston, Mass.

New Cement Directory.—The 1910 edition of the American Cement Directory has been issued by the Technical Press, Ford Building, Detroit, Mich. In addition to containing a directory of the Portland cement plants in active operation and those not in operation, but either idle, being rebuilt or under construction, this directory shows the types of grinding machinery used on the coal, raw side and clinker side of the various Portland cement plants in the United States and Canada. A brief history of the Portland cement industry is also included. The directory is published in vest-pocket form, making it very convenient for ready reference.

Valves.—Evidencing a satisfactory volume of trade are several important contracts recently closed by the Chapman Valve Manufacturing Co., 818 Victoria Building, St. Louis. These include an order for sluice gates for the Randall Farm reservoir at Denison, Tex.; four 48-inch gate valves and four electrically operated floor stands for the Louisville, Ky., Water Co.; cast-steel gate valves for the Union Electric Light & Power Co., St. Louis, and a carload of gate valves for the Water Department of Dallas, Tex.

Asphalt Paving.—For the more convenient canvas of Southern territory contiguous to Birmingham, the Barber Asphalt Paving Co., Land Title Building, Philadelphia, has established a Birmingham office with Charles S. Wadsworth in charge. This company is one of the largest producers of asphalt and ready roofing in the world, and its facilities have been employed on some of the most important contracts undertaken in this and other countries. Mr. Wadsworth's offices, it is announced, will be in the Chamber of Commerce Building.

Paving Block Plant.—A manager is wanted by large paving block plant in the East. He must be thoroughly experienced in the business, and furnish references. Inquiries addressed to this office will be forwarded.

MUNICIPAL APPLIANCES

Garbage Incinerator for Public Buildings

THE Chicago incinerator shown in the illustrations is designed primarily for the sanitary destruction of garbage and other refuse matter in hospitals, hotels, residences, etc. It is manufactured by the Incinerator Company of America, 124 Lexington avenue, New York. The idea of the invention, which originated with James B. Ricketts, of Ricketts & Bermingham, Inc., Boston, Mass., the New England company, which, in conjunction with O. M. Shannon, the president of the New York company, developed it, was to secure an odorless, sanitary receptacle for and destroyer of refuse, thus eliminating the use of garbage barrels and garbage removal.

The incinerator consists of a tightly closed receptacle, which constitutes a retort in which a very high degree of heat is generated by a special gas, gasoline or alcohol burner. The matter to be destroyed is permitted to accumulate in the receptacle until its quantity is sufficient to warrant burning. During this time the hopper door at the top, which receives the refuse, is kept closed by its own weight; the door at the burner, which provides the draft during operation, is automatically shut when the gas is shut off; while the ash-pit door is opened only to remove the ashes.

The device consists of a firepot, at the base of which is a grate draining into a gutter, beneath which is a burner, so placed that it cannot be affected by moisture from the charge, and is always accorded perfect combustion. At the apex of the grate is the combustion flue, which passes up through the mass and discharges near the top of the firepot. At the front of the incinerator is the mechanism for lighting the burner. A pilot light is ignited and the main

supply turned on. The motion of a single lever turns on the gas to the burner and opens the draft door. Thus it is impossible to leave the door open when the burner is extinguished. A mixer regulates the combination of gas and air supply. The Bunsen flame is pulled by the draft toward the combustion flue, bringing a cone of fire against the grate. Tests have demon-

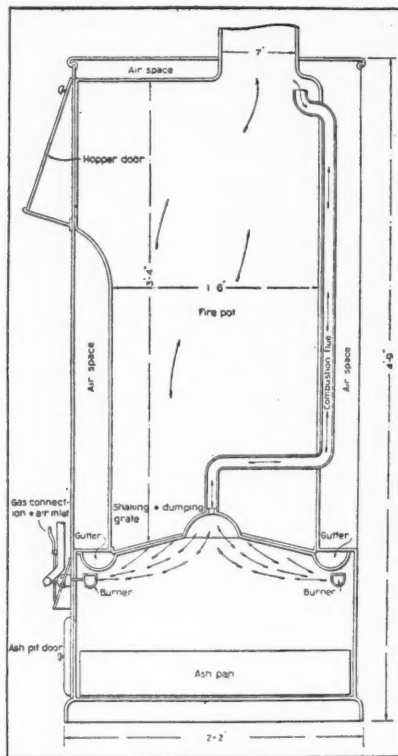
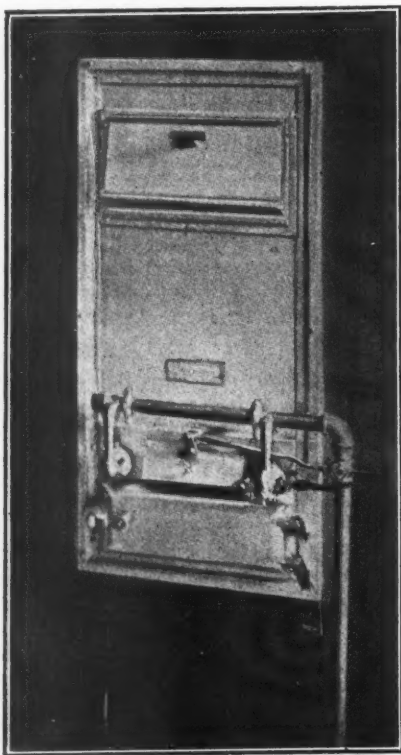


DIAGRAM OF GARBAGE INCINERATOR

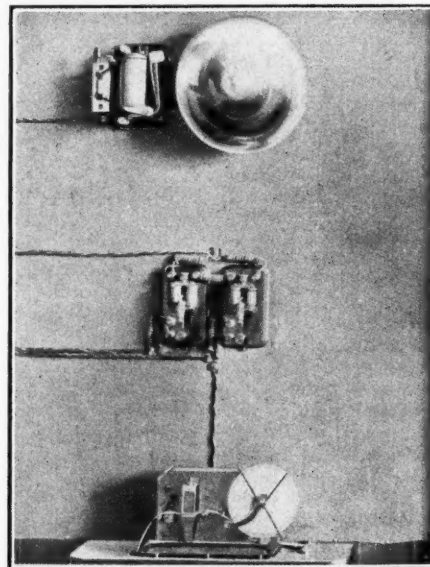
strated that a temperature of from 1,500 to 1,800 degrees Fahrenheit is generated at the base of the charge of refuse, while the upper opening of the flue discharges at a temperature of about 1,200 degrees, which causes the gases of combustion of the mass to consume themselves, a factor which has much to do with the odorless discharge from the incinerator into the chimney flue. The heat is intense enough to fuse broken glass, which clings to the grate, but is easily dislodged from it in the shaking, provision being made for this function. Under ordinary conditions of draft, garbage is consumed to a dry ash in an hour. With better draft, or with more combustible substances, the time is correspondingly less. Ashes of about 1 per cent carbon are left in the ashpit. The moisture from garbage is caught in grooves in the grate bars and runs into the gutters. The small amount that may find its way into the pit quickly evaporates. The incinerator is built in two types: the wall type set into the wall and the portable, which stands like a stove. It is only necessary that there be a chimney to discharge into. Several sizes are furnished in each style. Of the portable type, No. 1, holding one-half bushel, is 11 in. wide, 34 in. high and 14 in. deep; No. 2, holding one bushel, 16 in. wide, 40 in. high and 16 in. deep, and No. 3, holding one barrel, 26 in. wide, 4 ft. 9 in. high and 26 in. deep.



GAS-BURNING GARBAGE INCINERATOR

Fire Alarm on Telephone Circuit

A FIRE alarm system in connection with existing telephone circuits which is claimed to be simple, practical and efficient is manufactured by the Denio General Electric Company, Rochester, N. Y. It can be installed upon any central energy or automatic telephone circuits without change or interference with switchboard or telephone service, thus giving protection to subscribers and by street boxes to the public generally. The outdoor alarm boxes may



RELAYS, REGISTER AND GONG AT FIRE HEAD-QUARTERS

be placed upon telephone poles or in any desired location. When placed on a subscriber's line it automatically cuts out the telephone during the transmission of the alarm. The Denio company's method of installing the automatic system, bringing all circuits to a test switch, makes it possible to test every foot of wire and every thermostat in the building without starting the fire alarm box. The punching register and tapping gong, shown in the illustration, installed at fire headquarters, may, if desired, be connected to a tower striker.



DENIO STREET BOX

Improved Water Meter Details

THREE improvements in water meter details have recently been made in American and Niagara water meters by the Buffalo Meter Company, 290 Terrace, Buffalo, N. Y. Jewel bearings have now been introduced in the intermediate gearing. The intermediate gear train of a water meter consists of those gears submerged within the main casing, and which connect the measuring disc with the meter register. These gears must be very durable and easy running so that the meter will be operated by the least impulse. In the American and Niagara meters the first and second intermediate gears revolve at the highest speeds, and are carried on jewels to reduce the friction and wear; the third gear is attached to the stuffing box spindle, and is therefore carried by the pressure of the water. The jewels are permanently fastened in their gears and bear on the upper ends of rigid phosphor bronze pivots; the jewels also close the upper ends of the gears' bearings and exclude sediment and sand, which is a source of wear to ordinary meter gears. Each gear is composed of a large driven gear and a small driving pinion. The pinion is

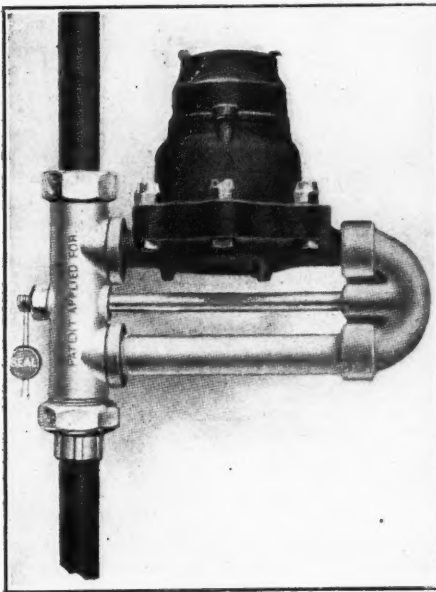


JEWEL BEARING—"FARSEEN" DIAL

meters without provision for reading less than hundreds. Disregard of units and tens places in readings is the common practice and construction with gas and electric meters.

The "Farseen" indicator is interchangeable with the regular standard or straight reading indicators and can be furnished to indicate in cubic feet or in gallons.

The other improvement mentioned is a convenient and inexpensive fitting for attaching small-sized water meters in a horizontal position on either a perpendicular or a diagonal pipe, and holding both meter and pipe rigidly in place. It consists of two separate parts with sockets in which the meter is inserted and held by pressure applied through the center rod and nut. The horizontal pipe below the center rod is not threaded at its outer extremity, but fits into a socket and forms a pressure joint in the same manner, and at the same time as the ends of the meter. It permits of the quick removal of the meter, saves cost of brass couplings and other fittings, keeps the meters interchangeable and may be sealed. The appliance is very strong and durable throughout, all parts being made of galvanized iron. It is furnished in but one size for attaching a $\frac{3}{8}$ -inch meter to $\frac{1}{2}$ or $\frac{3}{4}$ -inch iron pipe.



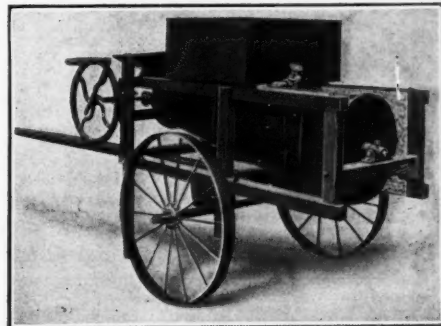
ECONOMICAL METER SETTING

fluted, pressed into the fluted hole of the gear and riveted so they will not come apart nor the pinion slip in the gear.

A modification of the Standard dial for five-eighths and three-quarters meters has been placed on the market under the trade name "Farseen." It combines the simplicity and continuous motion of the standard with some of the convenience and certainty in reading of the straight indicator. It is intended primarily for use on meters set in vaults and boxes, where larger figures and circles are desirable on account of the greater distance from which they must be read, but its advantages are applicable to all uses. The "Farseen" standard indicator is provided with the customary test hand, but does not register less than hundreds, so that two naughts must be added to its reading for units and tens places. This construction is in keeping with the custom of those water works which do not read the units and tens places of their meter indicators, and it also follows the custom of making large-sized

Hand-Power Concrete Mixer

A CONCRETE mixer operated by hand power, which is claimed to be a time, labor and money saver, is made by the Sidney Elevator Manufacturing Company, Sidney, O., for the use of sidewalk contractors and others when great capacity is not needed. The machine consists of an iron trough inclined, to decrease power needed, with a shaft with cylinder comprised of semi-spiral steel blades running through it. This shaft is rotated through means of gears by a two-band wheel, only one of which shows in the cut. The whole apparatus, with a hopper and water tank, is mounted on a wooden frame running on two wheels. The cranks on the hand wheel are adjustable and can be made with a long or short sweep to suit the conditions and the one operating the machine. The manufacturers



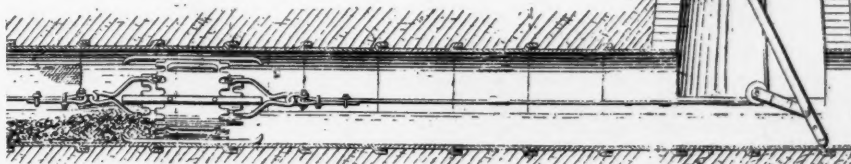
PEERLESS CONCRETE MIXER

state that with one man at the crank and one man shoveling, presumably from a point about on a level with the hopper, 45 cubic yards of concrete have been mixed in ten hours. The frame is made of seasoned hardwood, well braced and bolted together. The wheels are large and have wide tires. The mixer is mounted high enough so that the concrete can be delivered into a wheelbarrow. Adjustable legs at the front of the machine give the proper inclination, and can be lifted up out of the way when the mixer is being moved.

While intended for hand power, the machine can be run by a gas engine or other power by use of belt and pulley.

Sewer Cleaning Machine

THE accompanying sectional view illustrates how the Thompson sewer cleaning machine and root cutter is operated from one sewer manhole to another. The device consists of two winches—one to be mounted over each of the manholes at the ends of the section of sewer which is to be cleaned, the cutter and scraper which are drawn through the sewer, and suitable ropes and accessories. The winch is operated by a lever connected to a small gear, which engages a much larger one on the axis of the drum to which the rope is wound. The illustration gives a view of the manhole from which the scraper has traveled and a section of the sewer which has been cleaned. In front of the scraper an accumulation of dirt is shown. The scraper moves along the sewer on four steel shoes bent in at the ends, so as not to catch in the joints of the sewer pipe. An iron cylinder of a little less diameter is finished at the edges with chisel-shaped cutting teeth. The machine is manufactured by the Thompson Sewer Cleaning Machine Company, 72 South Division street, Buffalo, N. Y.

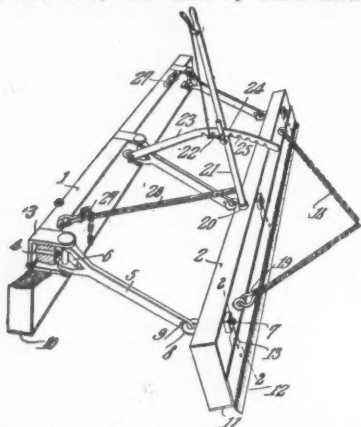


THOMPSON SEWER CLEANING MACHINE IN OPERATION

PATENT CLAIMS

961,007. ROAD DRAG AND GRADER. Orlando F. Phillips and Martin H. McCannell, Butlerville, Ind. Serial No. 495,650.

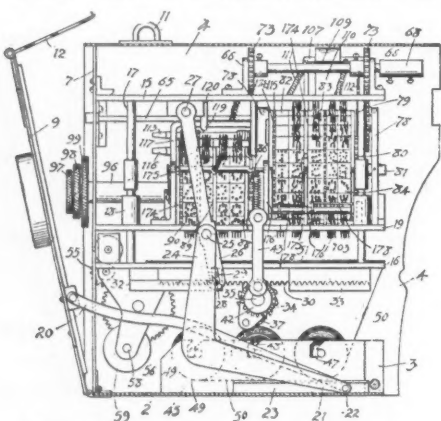
An implement as described comprising a plurality of bars, arms pivotally connecting the bars together, a chain attached to the forward bar, and take-up links attached



to the rear bar at points in the vicinity of the opposite ends thereof and adapted to receive said chain.

960,533. AUTOMATIC BILLING - MACHINE FOR METERS. Richard William Gallagher, Los Angeles, Cal., assignor to Automatic Billing Company, Los Angeles, Cal., a corporation of California. Serial No. 383,508.

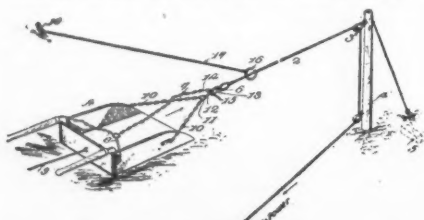
In an apparatus of the character described, the combination of a meter case, a recording mechanism, a casing therefor, means for attaching said casing to said case, a driving shaft for said mechanism, a meter shaft, a detachable connection for



said shafts, marking devices actuated by said driving shaft, means for supplying record sheets to said marking devices, a closure for said mechanism, means actuated by the movement of said closure for operating said marking devices to mark said record sheets, and means for discharging the record sheets so marked, substantially as described.

960,590. MEANS FOR AUTOMATICALLY DUMPING EXCAVATING - SCRAPERS. Adolf Skopinski, Jack Wade, Alaska. Serial No. 522,825.

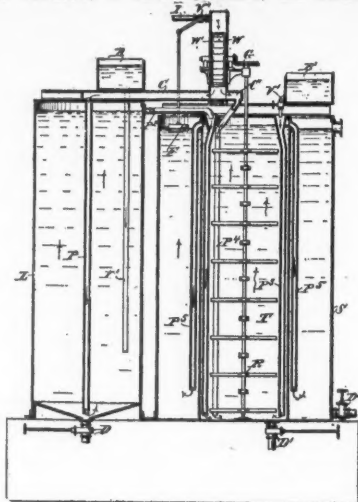
The combination with an excavating scraper, of a power cable, a normally slack connection from the rear end of the scraper to the power cable, a draft connection attached to the forward end of the scraper, a



connecting member detachably engaging the end of the draft connection with the power cable, and a tripping device in the path of movement of the power cable adapted to engage the connecting member between the power cable and the draft connection to disengage the latter from the former.

960,959. APPARATUS FOR THE CONTINUOUS PURIFICATION OF WATER. Charles Herschel Koyl, New York, N. Y. Serial No. 535,915.

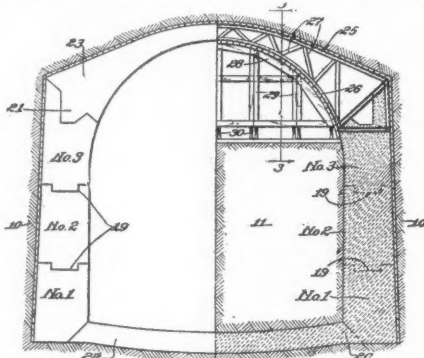
In apparatus for the continuous purification of water, a precipitating tank in which the raw water is treated and the precipitates resulting from that treatment are formed, a settling tank, an outlet at



the upper end of the precipitating tank communicating with the inlet of the settling tank, and inlets at the lower end of the precipitating tank communicating through separate ducts with the sources of raw water and reagent supplies respectively, substantially as and for the purpose hereinbefore set forth.

960,940. ART OF CONSTRUCTING TUNNELS IN THE EARTH. George W. Jackson, Chicago, Ill. Serial No. 544,528.

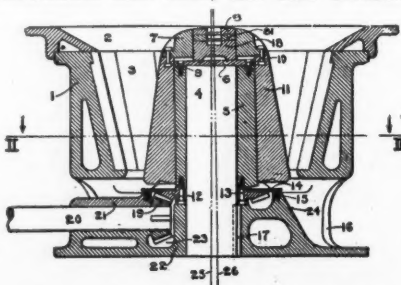
The improvement in the art of constructing tunnels in the earth, which consists in first building the side walls of the tunnel complete without open cut excavations, in the earth, which consists in excavating narrow tunnels wholly beneath



the surface of the earth along the lines of the side walls of the proposed tunnel, filling said narrow tunnels with wall forming material from within to constitute the side walls of the tunnel, excavating the earth between the side walls so constructed, and lining the upper and lower walls of the excavation to constitute the roof and floor respectively of the tunnel.

961,084. GYRATORY CRUSHER. George F. De Wein, Milwaukee, Wis., assignor to Allis-Chalmers Company, Milwaukee, Wis., a corporation of New Jersey. Serial No. 553,185.

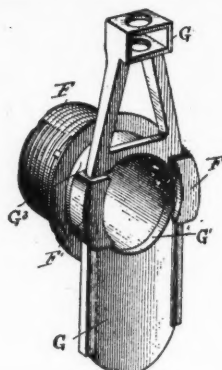
In a crusher, a shell, a crusher head within said shell, a rotatable eccentric within said head, and a stud within said eccentric, said stud being supported only from underneath said shell, and said eccentric



being supported on the upper end of said stud and having a different throw at different points along its length.

960,620. DISCHARGE-NOZZLE AND INDEPENDENT CUT-OFF VALVE FOR FIRE-HYDRANTS. August Leonard Bixel, Cleveland, O. Serial No. 393,860.

A fire hydrant comprising a casing provided with a boss in its side, a nozzle secured in the boss having oppositely disposed guide grooves formed on its inner



end, a valve having guide edges mounted in said guide grooves and being provided with an opening adapted to align with the opening in the nozzle, the valve having also upwardly extending arms which are thicker than the width of the grooves, and means for connecting said arms and the valve stem.

INCORPORATIONS

Fairfax Light, Heat and Power Company, Fairfax, Mo., capital, \$5,000. Incorporators: William F. Ranken, William F. Marshall, E. C. Whitford.

Federal Engineering & Construction Company, Delaware Corporation Company; capital, \$50,000. Incorporators: Hugh T. Downing, Webster N. Hass, Harry T. Shelley, all of Philadelphia, Pa.

The Lehigh Engineering & Contracting Company, Brooklyn, N. Y.; capital stock, \$250,000.

New Jersey Gas Company, Trenton, N. J.; capital, \$30,000. Incorporators: President, John Graham; vice-president, William E. Stokes; secretary-treasurer, Benjamin L. Van Shalek; assistant secretary-treasurer, James R. McClure, all of Philadelphia.

New Jersey Gas Company, capital \$30,000; formed by the consolidation of the Laurel Springs, Magnolia and Clementon Gas Company, of Clementon, Camden County; the Williamstown Gas Company, of Williamstown, Gloucester County, and the Woodbury Heights Gas Company, of Woodbury Heights, Gloucester County.

Pacific Power & Light Co., Augusta, Me.; capital, \$7,500,000. The promoters include A. E. Smith of Montclair, N. J.; E. W. Hill, New Rochelle, N. Y.; H. B. Squier, William R. Reiser, B. I. McClelland, F. S. Baker, E. J. Roch, G. J. Anderson, and A. V. Fitting, all of New York; E. P. Summerson, O. R. McMahon, A. C. Dixon and E. Freeman, all of Brooklyn; C. M. Hamilton, Elizabeth, N. J., and James G. Campbell, Newark, N. J. Miss E. M. Leavitt, a clerk in the law office in which the company was organized, was named as President and Treasurer.

Royal Sight Seeing Co., New York, N. Y.; manufacture and operate automobiles, carriages, boats for passengers, etc.; capital, \$5,000. Incorporators: David Spielberg, Hyman Novidor, Abraham Katz, all of New York City.

South Side Sewer Company, Leonia, N. J.; capital, \$10,000. Incorporators, Benjamin H. Belknap, Edward Grinslade and Arthur D. Bogert. The company is to operate plants for sewerage or drainage purposes, real estate, etc.

Standard Oil, Gas & Asphalt Co., Wilmington, Del.; Delaware Corporation Co.; capital, \$1,000,000. Incorporators: Max J. Winkler, Birmingham, Ala.; J. G. Gray, M. B. F. Hawkins, both of Wilmington, Del.

Stearn Automobile Repair Company, New York, N. Y.; manufacture, buy and deal in automobiles, etc.; capital, \$500. Incorporators: George Martensen, 1743 Broadway, New York City; Wm. T. Nicolai, 1743 Broadway, New York City; Francis Fitch, 30 Broad St., New York City.

The New York Smoke Separating Co., Wilmington, Del.; Delaware Charter Guarantee & Trust Co.; capital, \$500,000. Incorporators: Geo. C. Stiegler, Ralph C. Lupton, H. W. Nock, all of Wilmington, Del.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Ohio	Gallipolis	July 1	Grading and draining 14 miles of pike road	M. F. Leonard, County Surveyor.
Illinois	Colona	July 1	Bldg. 1,350 ft. concrete sidewalk	Village Clerk.
Indiana	South Bend	July 1, 10 a.m.	Bldg. cement walks and curb on Campau street	Otto C. Bastian, Chm. Bd. Pub. Wks.
Utah	Salt Lake City	July 1, 8 p.m.	Repairing all pavements ordered to Dec. 31	H. G. McMillan, Chm. Bd. Pub. Wks.
Texas	Rotan	July 1, 10 a.m.	Grading and graveling about 26,756 sq. yds.	J. C. Kirby, Mayor.
Alabama	Ft. Payne	July 1, 2 p.m.	Bldg. certain cement sidewalks	H. A. McSpadden, Town Clerk.
New Hampshire	Concord	July 1, 1 p.m.	Bldg. 3 gravel roads; cost, \$7,500, \$11,000, and \$9,000	H. C. Hill, State Engineer.
West Virginia	Bluefield	July 1, noon	Complete grading of portion of E. Princeton ave.	I. T. Akers, City Auditor.
Illinois	Chicago	July 1, 11 a.m.	Furn. 25,000 gals. paving pitch	B. J. Mullaney, Comr. Pub. Works.
Missouri	St. Louis	July 1, noon	Bldg. sidewalks in various streets	W. B. Dryden, Sec'y Bd. Pub. Imp.
South Dakota	Mobridge	July 2	Bldg. 10 ft. cement sidewalks	B. F. Hoard, Dep. City Auditor.
Iowa	Ft. Madison	July 2, 7:30 p.m.	Grade, curb, 5th st. with cement	L. G. Kiel, City Clerk.
Maine	Hallowell	July 2, 2 p.m.	Bldg. 550 ft. state road in city	F. S. Wingate, Mayor.
Colorado	Denver	July 2	Bldg. wagon road in Lake County	C. W. Comstock, City Engineer.
New Jersey	Burlington	July 3, 11 a.m.	Bldg. gravel road, 4.26 miles south from Gardner's Corner	H. E. Dubell, Dir. Freeholders, Mt. Holly.
North Carolina	Elizabeth City	July 5	Street paving to cost \$80,000	Ald. D. M. Jones, Chm. Special Com.
Indiana	Darville	July 5, 10 a.m.	Bldg. John P. Street gravel road, 7,893 ft. long, Union twp.	Wm. H. Nichols, County Auditor.
Indiana	Newcastle	July 5, 7 p.m.	Grading, paving and curbing portions of 3 streets	L. M. Johnson, City Clerk.
Illinois	Peoria	July 5, 2 p.m.	Paving 1,769 sq. yds. vit. brick; curb 1,840 lin. ft.	G. F. Simmons, Pres. Bd. Loc. Imp.
Indiana	Vincennes	July 5, 2 p.m.	Bldg. 5,736 ft., also 6,400 ft. gravel road	John T. Scott, County Auditor.
Indiana	Greencastle	July 5, 2 p.m.	Bldg. gravel road, 11,733 ft. long; 3 macadam roads, 11,252; 7,324 and 1,121 ft. long	D. V. Moffett, County Auditor.
Indiana	Tipton	July 5, 10 a.m.	Bldg. gravel road, 5,262 ft., rock road, 10,535 ft. long	J. F. Barlow, County Auditor.
Indiana	Vernon	July 5, 11 a.m.	Bldg. 25.6 miles road in Campbell township	T. L. Thomas, County Auditor.
Indiana	Delphi	July 5, noon	Improving highways in Deer Creek and Jackson twps.	M. G. Haun, County Auditor.
Indiana	Princeton	July 5, noon	Bldg. 5 rock roads: 16.5, 3.75, 2.5, 6.5 and 2.4 miles long	Board Comrs., Gibson County.
Indiana	Marion	July 5, 2 p.m.	Bldg. road in Fairmont township	A. Y. Stout, County Auditor.
Indiana	Rushville	July 5, 2 p.m.	Bldg. Chester George macadam road, Noble township	J. M. Stone, County Auditor.
Indiana	Vincennes	July 5, 2 p.m.	Bldg. 2,700 ft. gravel road	J. T. Scott, Auditor.
Illinois	Port Byron	July 5, 7 p.m.	Bldg. 1,750 lin. ft. 4-ft. cement sidewalk	B. H. Buntley, Village Clerk.
Texas	Galveston	July 5	Bldg. sidewalks and curbing; 4,000 sq. yds. sidewalk and 2,200 lin. ft. concr. retaining curb, etc. on Sea Wall Boulevard	J. M. Murch, County Auditor.
Illinois	Greenville	July 5	Bldg. 1 mile of macadam hard road; material furnished	J. A. Ward, Chm. Hwy. Comrs.
Colorado	Grand Junction	July 5	Bldg. County road from Kannak Creek to Palisade	Board of County Commissioners.
California	Santa Barbara	July 5	Bldg. extension of Mountain Drive in District No. 2	C. A. Hunt, Clk. Co. Bd. Supervisors.
Indiana	Wabash	July 5, 1 p.m.	Bldg. gravel road in Lago Township	J. P. Nofziger, County Auditor.
Indiana	Covington	July 5, 1:30 p.m.	Bldg. gravel road in Jackson, also one in Van Buren twp.	Wm. B. Gray, County Auditor.
Indiana	Salem	July 5, 1:30 p.m.	Bldg. roads in Pierce, Vernon and Washington twps.	Sam. G. Ellis, County Auditor.
Indiana	Versailles	July 5, 1 p.m.	Bldg. macadam roads in Franklin and Shelby twps.	Nicholas Volz, County Auditor.
Indiana	Broad Ripple	July 5, 7:30 p.m.	Bldg. concrete sidewalks in 60th street	F. Johnson, Town Clerk.
Pennsylvania	Schuylkill Haven	July 5, 7:30 p.m.	Paving portions of various streets	G. W. Bunz, Borough Engineer.
Ohio	Toledo	July 5, 10 a.m.	Repairing stone road	C. J. Sanzenbacher, County Auditor.
Montana	Big Timber	July 5, 7:30 p.m.	Bldg. 30,000 ft. cement sidewalks	E. C. Hall, Town Clerk.
Indiana	Indianapolis	July 6, 10 a.m.	Grading, paving, etc.; 4 jobs	C. A. Schroder, Pres. Bd. Pub. Wks.
Maryland	Baltimore	July 6	Bldg. 6 sections of highway, 19.3 miles	E. E. Goslin, Sec'y State Road Com.
Nebraska	Seward	July 6	Brick block paving; Consolidated Eng. Co., Bee Bldg., Omaha	Ed. Gordon, City Clerk.
Mississippi	Tupelo	July 6	Bldg. 20 miles road for Third Dist. of Lee Co.	D. W. Robins, Sec'y Road Comrs.
Indiana	Bloomington	July 6, 2 p.m.	Bldg. road in Washington and Bloomington twps.	Horace Blakely, County Auditor.
Iowa	Des Moines	July 6, 9 a.m.	Curbing 2,339 lin. ft. with Portland cement	Jas. R. Hanna, Mayor.
Indiana	Decatur	July 6, 10 a.m.	Bldg. macadam road in St. Mary's township	H. S. Michaud, County Auditor.
Indiana	Indianapolis	July 6, 10 a.m.	Grading and paving sidewalks in 5 streets	H. W. Klausmann, City Engineer.
Indiana	Lafayette	July 6, 10 a.m.	Bldg. gravel road	J. P. Foresman, Auditor.
Indiana	Muncie	July 6, 10 a.m.	Bldg. Smith crushed stone road, Center township	Jos. E. Davis, County Auditor.
Indiana	Logansport	July 6, 2 p.m.	Bldg. 26,000 ft. A. O. Brandt macadam road on township line	Geo. W. Cann, County Auditor.
Ohio	Canton	July 6, 10 a.m.	Brick paving, grading, draining 1 mile road, Lexington twp.	J. H. McConnell, County Auditor.
New York	Brooklyn	July 6, 11 a.m.	Regulating, grading, paving sidewalks, etc., on streets	A. E. Steers, Boro. President.
Ohio	Mansfield	July 6, noon	Grading and macadamizing 2.32 miles; cost, \$18,167	Board of County Commissioners.
Illinois	Chicago Heights	July 7, 8 p.m.	Bldg. cement sidewalks, 2 streets	Board of Auditors, Bloom Twp.
Nebraska	Red Cloud	July 7	Bldg. cement street crossings	O. C. Teel, City Engineer.
Indiana	Evansville	July 7, 10 a.m.	Furnishing road roller	Harry Stinson, County Auditor.
Indiana	Anderson	July 7	Bldg. 3 gravel and 1 asphalt road with asphalt binder	A. I. Smith, County Engineer.
Kentucky	Louisville	July 7	Asphalt paving, 17 blocks on 6 streets; cost, \$65,000	Board of Public Works.
Indiana	Lafayette	July 7, 10 a.m.	Bldg. a gravel road	J. P. Foresman, County Auditor.
New Jersey	Glen Gardner	July 7, 7 p.m.	Bldg. 1 mile macadam road on State land at Sanitarium	Dr. S. B. English, Superintendent.
Ohio	Cincinnati	July 7, noon	Improving Bassett Road	J. J. Wenner, Clk. Bd. Pub. Serv.
Ohio	Lisbon	July 7, noon	Brick paving and grading 1.5 miles; cost, \$20,100	St. Hwy. Comr., c. of Co. Comrs.
Ohio	Cincinnati	July 8	Widening road on Harris ave., Mt. Wash., Anderson twp.	Fred Dreihls, Clk. County Comrs.
California	Quincy	July 8	Bldg. road	County Clerk.
Ohio	Wooster	July 8, noon	Brick paving and grading, 1.8 miles; cost, \$13,172	St. Hwy. Comr., c. of Co. Comrs.
Indiana	Lebanon	July 8, 2 p.m.	Bldg. 2 gravel roads in Harrison and Eagle twps.	B. F. Hendrick, County Auditor.
Indiana	Richmond	July 8, 2 p.m.	Bldg. National road, cost, \$57,460, from city line west	D. S. Coe, County Auditor.
New York	Hoosick Falls	July 8, 8 p.m.	Brick paving, 900 sq. yds.; bit. macadam, 2,700 sq. yds.; concrete sidewalks, 68,200 sq. ft.; driveways, 5,600 sq. ft.; concrete curb and gutter, 4,660 lin. ft.; relay 7,500 sq. ft. flag walk. W. Thomas Wooley, Village Engineer	S. L. Cluett, Sec'y Pub. Imp. Com.
New Jersey	Flemington	July 8, 11 a.m.	Building macadam road 17,802 ft. long	J. W. Sharp, Dir. Co. Freeholders.
Ohio	Findlay	July 9	Bldg. 5 miles stone pike in Delaware County	Frank C. Shank, County Auditor.
Dist. of Colum	Washington	July 9, noon	Paving various streets with asphalt and asphalt block	C. H. Rudolph, Chm. Bd. Comrs.
Indiana	Anderson	July 11	Bldg. 4,346 sq. ft. cement walk, 1,000 lin. ft. curb and gutter	G. A. Lampher, City Engineer.
Indiana	Newport	July 11, 10 a.m.	Bldg. gravel road in Clinton township	H. T. Payne, County Auditor.
New Jersey	Newark	July 11, 3 p.m.	Bit. Telford paving, grading, etc., 4 miles Pleasant Valley Way, from Verona to West Orange	Wallace Oughiltree, Dir. Freeholders.
Wisconsin	Waukesha	July 11	Tar macadam paving, 31,139 sq. yds.; brick on concrete, 5,770 sq. yds.; comb. concrete curb and gutter, 21,435 lin. ft.; excavation, 15,450 cu. yds., 5 streets and avenues	Morgan R. Butler, City Engineer.
Iowa	Marion	July 11, 8 p.m.	Laying 35,800 sq. yds. brick block pavement on 4-in. conc. foundation and 2-in. sand cushion; also 11,000 lin. ft. concrete curb	S. N. Parsons, Engineer.
New York	Ft. Slocum	July 12, 11 a.m.	Building roads, walks, curbs, gutters and drains	Constructing Q. M.
Florida	Lake City	July 12, 7:30 p.m.	Brick paving, laid flat, 16,000 sq. yds.; cement walks, 5 miles; cement or 2x6 heart pine curbing	J. W. Layne, Sec'y Bd. Pub. Wks.
Montana	Fairmont	July 12	Graveling road	H. P. Edwards, County Auditor.
Ohio	Sandusky	July 14	Grading, curbing and paving 25,000 sq. yds. with asphalt; curbing 12,000 lin. ft.	John Bing, Dir. Pub. Service.
Ohio	Cincinnati	July 15, noon	Improving various roads; 4 jobs	Fred Dreihls, Clk. Bd. Co. Comrs.
Wisconsin	Wausau	July 15	Creo. block paving, 8,000 sq. yds.	B. C. Gowan, City Engineer.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS (Continued)				
Ohio	Cincinnati	July 15, noon	Improving two roads.	Fred. Dreihls, Clk. Bd. Co. Comrs.
Indiana	Evansville	July 18, 10 a.m.	Improving and resurfacing Fourth and Division Streets.	Harry Stinson, County Auditor.
Ohio	Cincinnati	July 22, noon	Improving Hamilton and Montgomery Pikes	Fred. Dreihls, Clk. Co. Comrs.
Wisconsin	Racine	July 30, 10 a.m.	Asphalt paving, 10,371 sq. yds.; comb. curb and gut, 5,547 ft.	P. H. Connolly, Chm. Bd. Pub. Wks.
SEWERAGE				
Maine	Portland	July 1, noon	Bldg. Sec. 2, Morrills Corner sewer.	Bion Bradbury, Jr., Com'r.
Pennsylvania	West View	July 1	Bldg. sewer system and disposal plant; Trimble & Moller, Engineers, 435 Fourth ave., Pittsburg.	H. L. Donaldson.
Ohio	Jefferson	July 1	Constructing sewers.	F. M. Miller, Village Clerk.
Indiana	South Bend	July 1, 10 a.m.	Bldg. pipe sewer in Milton ave., house connections, etc.	O. C. Bastian, Chm. Bd. Pub. Wks.
Pennsylvania	North Braddock	July 1	Bldg. 3,648 ft. 18, 8 and 6-in. pipe sewer, 2,680 ft. 30, 24, 18 and 15-in. d. s. pipe, 26 manholes, etc.	C. A. Stewart, Bor. Engineer.
Wyoming	Douglas	July 1	Bldg. sewers in Blocks 37 and 38; town to furnish pipe, contractor all cement.	F. W. DeCastro, Town Clerk.
New York	Rome	July 4, 10 a.m.	Bldg. sewage disposal plant at Custodial Asylum.	Chas. Bernstein, Superintendent.
Texas	Belton	July 5	Bldg. sanitary sewer system and purification plant; 23,415 ft. 8, 10 and 12-in. vit. pipe sewer, etc.	C. B. Smith, Sec'y Belton Sewer Co.
Florida	Jacksonville	July 5, 3 p.m.	Furn. and lay 820 ft. 10-in. and 410 ft. t. c., 6,091 ft. 8-in. t. c. sewer, etc.; also 800 ft. 30-in. 3,430 ft. 24-in. circular brick drains, manholes, etc.; R. N. Ellis, C.E.	W. M. Bostwick, Jr., Chm. W.W. Tr's
New Jersey	Plainfield	July 5, 1 p.m.	Bldg. storm sewer: 375 ft. 24-in., 265 ft. 30-in., 400 ft. 12 and 15-in. vit. pipe; 2 manholes, 12 inlets, etc.	Andrew J. Gavett, City Surveyor.
Oklahoma	Hugo	July 5, 8 p.m.	Bldg. complete sanitary sewer system and disposal plants.	H. C. Blanchard, City Engineer.
Nebraska	Omaha	July 5, 10 a.m.	Bldg. sewers in various streets.	D. B. Butler, City Clerk.
North Dakota	Grand Forks	July 5, 4 p.m.	Bldg. lateral sewer, etc., in alley between 3d and 4th streets.	C. J. Evanson, City Auditor.
Texas	Belton	July 5, 8 p.m.	Material and labor for sanitary sewer system and disposal plant: 4,017 ft. 12-in., 718 ft. 10-in., 18,680 ft. 8-in. vit. sewers; 67 manholes, 10 flush tanks; also 3,556 cu. yds. conc. and 366 rock excav., 118 cu. yds. rein. and 80 plain concrete; 500 cu. yds. broken stone, piping and accessories.	Chas. B. Smith, Sec'y Sewer Com.
Illinois	Joliet	July 5, 10 a.m.	Bldg. sewer in Dewey ave.	Wm. S. Welch, Clk. Bd. Loc. Imp.
Nebraska	Albion	July 6, 8 p.m.	Bldg. sewer, Dist. No. 1; cost, \$2,053.26.	R. T. Plotree, City Clerk.
New York	Brooklyn	July 6, 11 a.m.	Bldg. sewers, etc., in various streets.	A. E. Steers, Boro. President.
Iowa	Iowa Falls	July 6	Bldg. sewer system, Dist. No. 11.	J. O. Gregg, City Clerk.
Massachusetts	Attleborough	July 6, 3 p.m.	Bldg. trunk sewer and filtration areas; 7 contracts.	Dr. C. S. Holden, Chm. Sewer Com.
Iowa	Pella	July 6, 8 p.m.	Bldg. 6 miles 8-15-in. pipe sewer; also disposal plant.	A. C. Kuyper, City Clerk.
Ohio	Struthers	July 6, noon	Bldg. sanitary and storm sewers in Short and Elm streets.	L. S. Creek, Village Clerk.
Wisconsin	Appleton	July 6, 4 p.m.	Bldg. sewers in various streets.	E. L. Williams, City Clerk.
Minnesota	Tracy	July 7, 8 p.m.	Bldg. portion of sewer system.	C. C. Richard, Mayor.
Massachusetts	Ft. Warren	July 7, 10 a.m.	Changes and extension of sewer system.	Capt. A. M. Miller, Constr. Q. M.
Michigan	Munising	July 7	Bldg. 6,854 ft. 8 to 24-in. vit. pipe, 1,985 ft. 2.5 x 3 ft. and 3 x 3.5 ft. concrete sewers, 19 catch basins, 2 bulkheads, etc.	James Tracy, City Clerk.
Pennsylvania	Norristown	July 8	Bldg. sewage disposal plant, laying pipe, etc., at State Hospital; Albright & Mebus, Engineers.	Commission on Sewerage.
New Jersey	Phillipsburg	July 8	Bldg. 1,300 ft. 4x4-ft. concrete storm sewer.	R. P. Howell, Town Engineer.
Indiana	South Bend	July 8	Bldg. pipe sewer and connections, E. Madison st.	O. C. Bastian, Chm. Bd. Pub. Wks.
Massachusetts	Boston	July 9, 11 a.m.	Bldg. drain at navy yard.	Com. Officer, Navy Yard.
Iowa	Ft. Dodge	July 11, 5 p.m.	Bldg. storm water sewer, various streets.	W. L. Tang, City Clerk.
Montana	Missoula	July 11, 5 p.m.	Building sanitary sewer system; see "Proposals," June 22.	C. W. Swearingen, City Engineer.
Minnesota	Winona	July 11	Bldg. storm, water and sanitary sewers, 2 streets.	P. A. Jasmer, City Recorder.
South Carolina	Charleston	July 11, noon	Bldg. sewage receiving tank, pump pit, etc., including vert. centrifugal pumps, elec. motors, control, devices.	J. H. Dingle, City Engineer.
Idaho	Sandpoint	July 11, 4 p.m.	Bldg. 13,817 lin. ft. 8 to 18-in. vit. pipe sewer, 800 lin. ft. 30-in. rein. concr. pipe, 2,000 lin. ft. 16-in. wood-stave pipe, one screen house, etc.; Foster & Case, Engrs.	Dr. R. N. Jackson, Chm. Sewer Com.
Georgia	Atlanta	July 12, 10 a.m.	Furn. and delivering sewer and water pipe, fittings, etc., at Pen.	Warden, U. S. Penitentiary.
Kansas	Herington	July 12, 7 p.m.	Bldg. sewer system; Burns & McDonnell, K. C., Engineers.	G. W. Krause, City Clerk.
Iowa	Leon	July 12, 8 p.m.	Bldg. 2 miles 6 to 12-in. sewer and disposal plant; cert. checks, \$500 each; Iowa Engineering Co., Clinton, Engineers.	S. G. Mitchell, City Engineer.
Kansas	Sabetha	July 12	Bldg. sanitary sewers, including 2 separate disposal works.	Burns & McDonnell, K. C., Engrs.
New York	Binghamton	July 13, 4 p.m.	Bldg. vit. pipe sewer in 3 streets.	S. W. Murray, Clk. Bd. Cont. & Sup.
New Jersey	Elizabeth	July 15, 8 p.m.	Bldg. 315 ft. 10-in., caulked joints; also 336 lin. ft. 6-in. pipe, 2 manholes; includes inspector's pay.	N. K. Thompson, Street Comr.
New Jersey	Westfield	July 18	Bldg. several pieces of sewer.	City Council.
WATER SUPPLY				
New York	Olean	July 1, 8 p.m.	Trench, lay, back fill for 3,100 ft., 18-in. water lines.	Chas. Keenan, Sec'y Water Board.
New York	Belfast	July 1, 8 p.m.	Bldg. system of water works.	P. F. Loftis, Chm. Water Comrs.
Illinois	Moline	July 1	Equipping filter bed.	Village Recorder.
Montana	Plainview	July 1	Furn. 3,450 ft. 4-in. c-i. water pipe and other supplies.	J. O. Jones, Village Clerk.
Wisconsin	Randolph	July 1, 7 p.m.	Extending water mains.	W. W. Dalton, Pres. Vil. Bd.
Wisconsin	Clinton	July 1, noon	Bldg. cement reservoir.	J. J. Porter, Chm. Water Com.
Virginia	Louisa	July 2	Boring 10-in. artesian well for County and town.	
Colorado	Denver	July 2, 2 p.m.	Bldg. a lake, inc. 8,000 ft. 48-in. continuous wood-stave pipe, 8,000 ft. concrete-lined canal; hydraulic fill or earth dam, 265,000 cu. yds.; outlet tunnel, 600 ft. long; outlet canal, 3,000 ft. long; spillway diversion dam, valves, valve chambers, etc.	Thos. W. Jaycox, C.E., 1608 Bwy.
Pennsylvania	Albion	July 5	Bldg. water system: 2,000,000-gal. reservoir, lay 26,906 ft. distribution mains, 25,465 ft. supply pipes; cost, \$28,000; city to furnish pipes, etc. C. C. Hill, Engr.	S. A. Collins, Boro. Clerk.
Oklahoma	Muskogee	July 5	Furnishing 260 tons 6-in. c-i. water pipe and forty 4-in. Corey steamer fire hydrants, f.o.b. Muskogee.	Chas. Wheeler, Jr., City Clerk.
Wisconsin	Spooner	July 5, 8 p.m.	Laying 2,500 ft. 4-in. water main and furn. 4 hydrants.	Geo. B. Sage, City Clerk.
California	Ft. Mason	July 5, 11 a.m.	Bldg. 8-in. water main from Presidio to Ft. Mason.	Maj. Geo. McK. Williamson, Q.M.
Illinois	Glencoe	July 5, 8 p.m.	Bldg. water mains and connections.	G. D. Hall, Sec'y Bd. Loc. Imp.
Illinois	Harvard	July 5, 8 p.m.	Laying 4 miles water mains, 3 hydrants, etc.	P. E. Saunders, City Clerk.
Ohio	Bellaire	July 5, noon	Furn. and delivering c-i. water pipe, elbows, etc.	R. E. Crow, Clk. Bd. Pub. Serv.
Minnesota	Intern'l Falls	July 5, 8 p.m.	Extending water mains.	R. C. Fraser, Village Recorder.
New York	New York	July 6, 2 p.m.	Furn. 5 portable meters that may be inserted into any main through 1-in. corp. cock, equip. photo. record. attachment.	H. S. Thompson, Com. W.S., G. & E.
Minnesota	Chisholm	July 6	Bldg. 300,000-gal. elevated steel tank; D. W. Mead, C.E.	J. G. Hirsch.
California	San Francisco	July 6	Laying water pipe, auxiliary system, First District.	Board of Works.
New York	New York	July 6	Furn. and lay water mains, 48-in., etc., in Bronx; also high-pressure fire mains, in lower Manhattan.	H. S. Thompson, Com. W. S., G. & E.
Arkansas	Ft. Smith	July 6, 10 a.m.	Bldg. water main extensions; "see Proposals"	W. J. Johnson, Chm. Bd. Pub. Wks.
Wisconsin	Viroqua	July 7, 6 p.m.	Bldg. pump station; Parkinson & Dockendorff, La Crosse, Architects.	City Clerk.
Michigan	Grand Rapids	July 7, 8 p.m.	Bldg. clear water conduit, intake and drain.	S. A. Freshney, Sec'y Bd. Pub. Wks.
Virginia	Waynesboro	July 8	Bldg. steel stand pipe, 25 ft. diam., 80 ft. high.	P. D. Woodfin, Town President.
Utah	Salt Lake City	July 8, 10 a.m.	Sinking an artesian well on Levan ridge, Juab Co.	W. H. Farnsworth, Sec'y Land Bd.
Iowa	Corydon	July 11, 7:30 p.m.	Drilling deep wells; old bids rejected; \$300 check.	Iowa Eng. Co., Clinton.
Georgia	Atlanta	July 12, 10 a.m.	Furn. water pipe, fittings, sewer pipe, etc., at Penitentiary.	Warden, U. S. Penitentiary.
Washington	Sultan	July 13	Bldg. water system; cost, \$14,500.	H. Mumm, Jr., Everett, Engineer.
Minnesota	Donnelly	July 14, 2 p.m.	Bldg. tower tank, 85 ft. high and laying 4 and 6-in. water mains, 2 blocks.	C. R. Sathers, Village Recorder.
Colorado	Boulder	July 18, 7 p.m.	Bldg. rubble concrete masonry dam at Albion Lake reservoir, 60 ft. high; 13,000 cu. yds. rubble concrete, excav., gate houses, valves, etc.; \$5,000 cert. check; \$25,000 bond.	Fred R. Dungan, City Engineer.
South Dakota	Ft. Meade	July 20, 10 a.m.	Bldg. concrete dam, spillway, etc.	Constructing Quartermaster.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
BRIDGES				
Washington	Spokane	July 1	Bldg. combination bridge at Waverly.	Board of County Commissioners.
Illinois	Geneseo	July 1, 8 p.m.	Bldg. 2 concrete bridges.	J. F. Lieberknecht, Clerk Council.
Pennsylvania	Ebensburg	July 5, 1 p.m.	Bldg. two bridges.	C. E. Troxell, Clk. Co. Comrs.
Indiana	Martinsville	July 5, 2 p.m.	Bldg. a bridge in Gregg township.	B. E. Thornburg, County Auditor.
California	Albion	July 5, 2 p.m.	Bldg. and repairing bridges, culverts and abutments.	John W. Earle, County Auditor.
California	Los Angeles	July 5, 2 p.m.	Bldg. concrete culvert over Walnut st. on Valley Center road.	C. G. Keyes, County Clerk.
Indiana	Greenfield	June 5, 10 a.m.	Bldg. 3 concrete steel bridges in Brandywine, 1 Sugar Creek.	C. H. Tracy, County Auditor.
Indiana	Crown Point	July 5, noon	Bldg. bridge in Ross township.	C. A. Johnson, County Auditor.
Indiana	Lawrenceburg	July 5, noon	Bldg. bridge over Hogan creek.	W. S. Fagaly, County Auditor.
Indiana	Richmond	July 5, noon	Bldg. concrete arch and concrete pier bridges, 2 concrete culverts, repairing 2 bridges, etc.	D. S. Coe, County Auditor.
South Dakota	Pierre	July 5	Building various bridges.	C. M. Price, County Auditor.
Washington	Stevenson	July 5, 1 p.m.	Bldg. bridge over Little White Salmon river, Sec. 15, Twp. 4.	Bd. of Comrs, Skamania County.
Indiana	Hartford City	July 5	Building 5 culverts in county.	L. W. Daugherty, County Auditor.
Texas	Arcadia	July 5	Bldg. from 50 to 100 wooden bridges.	R. W. Luttrell, Engr. Drain Dist.
California	Templeton	July 6, 10 a.m.	Bldg. steel concrete highway bridge.	H. L. Carpenter, Clk. Bd. Supr.
North Dakota	Fargo	July 6, noon	Building 30-ft. bridge and repair 100-ft. bridge.	A. C. Lewes, Co. Auditor.
Illinois	Des Plaines	July 6, 11 a.m.	Bldg. 7 concrete culverts.	Town Clerk.
Nebraska	Greeley	July 6	Bridge work for year.	F. M. Toohy, Clk. Greeley County.
North Dakota	Bellefourche	July 6, noon	Bldg. 3 cement piers.	D. C. Barr, County Auditor.
Illinois	Stronghurst	July 7, noon	Bldg. 3 concrete bridges.	P. A. Stamp, Township Clerk.
Pennsylvania	Franklin	July 7	Bldg. Petroleum bridge at Oil City; stone and concrete sub. and steel superstructure.	Board of County Commissioners.
Pennsylvania	Indiana	July 7	Bldg. rein. concr. bridge, 42 ft. long.	Board County Commissioners.
Ohio	Cincinnati	July 8, noon	Bldg. concrete bridge and widening road.	Fred. Dreihls, Clk. County Comrs.
Montana	Ft. Benton	July 11, 2 p.m.	Bldg. 4 combination or steel bridges, two 200 ft. long, 80 and 51 ft., all 18 ft. wide; concrete piers, etc.	W. R. Leet, County Clerk.
New York	Binghamton	July 11	Bldg. concr. or iron bridge over Chenango River.	County Commissioners.
Ohio	Delaware	July 11, noon	Bldg. 2 abutments.	W. W. Bodurtha, County Auditor.
California	Visalia	July 12	Bldg. rein. concrete conduit and bridges; cost, \$80,000.	Merve L. Weaver, City Engineer.
Ohio	Columbus	July 14	Bldg. bridge over Grant river.	Board County Commissioners.
Indiana	Jeffersonville	July 16, 11 a.m.	Bldg. bridge over Logan creek.	C. W. Kelly, Co. Engineer.
Illinois	Freeport	July 18	Bldg. conc. culvert, 9 ft. diam., 300 ft. long.	J. A. R. Daniels, City Engineer.
Georgia	Columbus	July 18, noon	Bldg. concrete-steel arch bridge over river at Dinghlan st.	W. C. Campbell, Supt. Pub. Wks.
Ohio	Hamilton	July 19, 10 a.m.	Bldg. bridge over Elk creek.	J. E. Brate, County Auditor.
South Carolina	Greenville	July 20	Bldg. rein. concr. bridge.	H. S. Jaudon, Box 1582, Savannah Engineer.
Maine	Solon	July 23, 2 p.m.	Sub-structure for bridge over Kennebec River.	G. D. Perkins, Chm. Bldg. Co.
Virginia	Leesburg	July 25	Bldg. rein. concrete or iron bridge across "The Dutchman"; 55-ft. span, 12-ft. roadway, and abutments; also for bldg. bridge over Little River, near Aldie.	J. J. Crim, Chm. Co. Comrs.
Louisiana	Alexandria	July 28	Building cresooted timber frame protection fender on piles.	Ira W. Sylvester, Consulting Engr.
LIGHTING AND POWER				
Florida	West Palm Beach	July 1	Constructing electric light plant, etc. See Proposal.	G. W. Jonas, Sec'y W. P. B. Imp. Co.
Tennessee	Memphis	July 5	Furn. incandescent gas and gasoline lights, also equipment and maintenance of same.	Ennis M. Douglass, City Clerk.
Maryland	Baltimore	July 6	Furn. and main. gas and naphtha street-lamp fixtures.	R. J. McCuen, Supt. of Lamps.
Michigan	Sturgis	July 6, 7 p.m.	Bldg. brick and concrete water-power station and excav. for tail race, bldg. concrete multiple arch spillway and earth embankment; G. S. Williams, C.E.	Board of Public Works.
MISCELLANEOUS				
Florida	West Palm Beach	July 1	Hydraulic dredging, 300,000 cu. yds.	Geo. W. Jonas, Sec'y W.P.B. Imp. Co
Utah	Salt Lake City	July 1	Bldg. barge and 2 floats and installing thereon dredging machinery to be furnished by city.	H. G. McMillan, Chm. Bd. Pub. Wks.
Illinois	Lake Forest	July 1	Bldg. garbage crematory, double furn., 4 units cap., 12 tons per 24 hrs.; also brick bldg. and chimney, 150 ft. high.	Jas. F. King, City Clerk.
Pennsylvania	Larksville	July 1, noon	Bldg. town hall; J. A. Boyle, Architect.	B. F. Keller, Borough Secretary.
Dist. of Col'ia	Washington	July 1, 2 p.m.	Installing 75-ft. aerial extension ladder, rais. mech. on truck.	C. H. Rudolph, Chm. Bd. Comrs.
Dist. of Colum'a	Washington	July 1, 2 p.m.	Furn. 4-passenger, gasoline auto touring car.	C. H. Rudolph, Chm. Bd. Comrs.
Illinois	Rock Island	July 4	Installation of fire alarm system.	M. T. Rudgren, City Clerk.
Virginia	Richmond	July 5, 4 p.m.	Bldg. pike bulkhead and excavating in deepening river along side wharf.	C. E. Bolling, City Engineer.
New Jersey	Perth Amboy	July 5, 8 p.m.	Erecting fire house; W. H. Boylan, Architect.	W. V. Quin, Borough Clerk.
Indiana	Lawrenceburg	July 5, noon	Building bridge over Hogan Creek.	W. S. Facaly, County Auditor.
Maryland	Ft. Howard	July 5	Bldg. fire station.	Constructing Q. M.
California	Oakland	July 6, 11 a.m.	Furn. fire hose, motor-driven pumping engine and 3 motor-driven comb. chemical and hose wagons.	W. B. Fawcett, Sec'y Bd. Pub. Wks.
Kansas	Hutchinson	July 8, 3 p.m.	Sprinkling 6th ave., one year.	Ed. Metz, City Clerk.
Texas	Lubbock	July 11, 10 a.m.	Bldg. \$14,000 jail.	J. R. McGee, County Judge.
Minnesota	Detroit	July 12, noon	Bldg. jail; C. E. Bell, Tyrie & Chapman, Archts.	E. W. Davis, Chm. Co. Comrs.
California	Visalia	July 12	Bldg. rein. concrete conduit and bridges; cost, \$80,000.	M. J. Byrnes, City Clerk.
California	Oakland	July 13, 10 a.m.	Erecting tower for fire-alarm and police telegraph system.	W. B. Fawcett, Sec'y Bd. Pub. W.
Ohio	Creston	July 14, noon	Furn. current for electric light system; also install. street lighting system; 2 jobs.	C. A. Tenney, Village Clerk.
Louisiana	Alexandria	July 28	Building cresooted timber frame protection work and bridge fender on pile foundation.	I. W. Sylvester, Consult. Engr.
Mississippi	Natchez	Aug. 3	Sprinkling streets.	W. G. Benbrook, Mayor.

STREET IMPROVEMENTS

Birmingham, Ala.—Council has adopted ordinance for paving 13th ave. South.—M. Nicholson, City Engineer.

Evergreen, Ala.—Conecuh County has voted \$100,000 bonds for road improvements.

Selma, Ala.—Dallas County Commissioners have rejected bids received for \$250,000 good road bonds.

Forrest City, Ark.—City is considering building five miles of concrete sidewalks.

Stuttgart, Ark.—Council has passed ordinance providing for paving of Main st.

Martinez, Cal.—County Surveyor E. C. Brown has joined with Contra Costa County Highway Commission in recommending to Board of Supervisors that election be called on \$1,460,000 bonds to be expended in improvement of 126 miles of public roads.

Porterville, Cal.—City will lay about one-half mile of sheet asphalt at cost of \$25,000; bids will be asked about July 18.—Irvin H. Althouse, City Engineer.

Redding, Cal.—Bids will soon be asked by Board of Supervisors for construction of 14 miles of road.

Riverside, Cal.—Highway Commission has recommended building of a north and south road from Brawley to Calexico; cost \$475,000.

San Bernardino, Cal.—Council has decided to pave portions of F, D, H and Court sts.

Georgetown, Del.—Council will be asked to compel all property owners within the business limit to lay cement walks.

Wilmington, Del.—President G. W. Sparks, of Street and Sewer Directors, is urging improvement of approach to city on Philadelphia turnpike; cost about \$10,000.

Wilmington, Del.—City has sold \$200,000 street and sewer bonds to N. W. Harris & Co., New York.

Ft. Pierce, Fla.—Bids will be received July 18 for \$200,000 good roads bonds.—J. E. Fultz, Clerk Board of County Commissioners.

Jacksonville, Fla.—Council has passed ordinance providing \$100,000 bond issue for widening, extending, opening and paving streets.

Jacksonville, Fla.—Estimates will be prepared by City Engineer Prioleau for paving three streets with vit. brick and continuing pavement on Laura st.

St. Augustine, Fla.—Committee, J. T.

Campbell, Chairman, has recommended purchase of road roller.

St. Augustine, Fla.—County Commissioners of St. Johns will soon adopt plans for complete system of road improvement.

Elgin, Ill.—Council has decided to extend paving on Walnut ave.

Oregon, Ill.—Rockvale Township has voted to secure \$12,000 loan for constructing permanent roads.

Logansport, Ind.—Plans are being prepared by Engineer C. R. Lybrook for five miles of crushed stone road improvements and concrete box culverts on the Brant road.—G. W. McCann, County Auditor.

Marion, Ind.—County Commissioners are considering improvement of 9th st. by bricking.

Vincennes, Ind.—Board of Works has decided to grade and gravel 12th and 13th sts.

Atlantic, Ia.—Bids will soon be received for 26 blocks of asphalt and brick paving.—T. E. Nichols, City Clerk.

Corning, Ia.—Council has decided to ask bids for proposed paving.

Council Bluffs, Ia.—Plans are being prepared by City Engineer S. L. Etnyre for brick block paving, on concrete base, at

cost of from \$15,000 to \$20,000.—A. W. Casady, City Clerk.

Davenport, Ia.—Council has approved estimates of cost of grading and paving the following: Iowa st., \$5,716; 8th st., \$2,089; 18th st., \$5,545; 17th st., \$2,260.

Des Moines, Ia.—Council has decided to pave 14th and High sts.

Osceola, Ia.—Council has voted to pave 12,000 sq. yds. and lay 4,000 ft. of curbing.

Sioux City, Ia.—Plans have been prepared by Engineers Smith & Finley, American Block, for one mile of concrete curb, gutter and sidewalks in Norwood addition.

Fort Scott, Kan.—Bids will be readvertised for Market square and 5th st.

Kansas City, Kan.—Wyandotte County has \$45,000 to expend on rock roads this year.

McPherson, Kan.—Council is considering paving.

Lafayette, Ky.—Christian County Fiscal Court will complete turnpike from this city to Herndon, distance six miles.

Louisville, Ky.—Monroe Township has voted to build 3,607 miles of road at cost of \$7,208.

Mansfield, La.—City is considering building five to six miles cement sidewalk.—F. Kavanaugh, Street Commissioner.

Baltimore, Md.—Roads Engineer Henry G. Shirley, Baltimore County, will oil 75 miles of roadway during year; plans have been prepared for reconstruction of Lawrence ave., resurfacing of Bloomsburg ave. with tar macadam, reducing grade on Gibson Hill, laying solid concrete bed 400 ft. long on Whitehall road, cost \$5,000; also macadamizing half mile of Falls road with Telford macadam.

Baltimore, Md.—Good Roads Commission has decided to cover the State road between Chestertown and Easton with Texas oil; cost \$150 per mile.

Easton, Md.—William E. Shannahan, J. W. D. Jump, James A. Spence and O. H. Henry have been named as a committee to institute mandamus proceedings to compel Mayor and Council to build improved streets authorized by bill passed by last Legislature.

Havre de Grace, Md.—City is considering \$27,000 bonds for street macadamizing in addition to \$30,000 issued.

Fall River, Mass.—Board of Aldermen has adopted order appropriating \$25,000 for highways.

Lawrence, Mass.—Council has adopted \$25,600 order for macadamizing streets.—A. D. Marble, City Engineer.

Detroit, Mich.—City Engineer Robert H. McCormick has prepared plans for repaving at cost of \$79,000; also plans to pave Beaubien st., from the Boulevard to Bethune ave., with creosoted blocks, cost \$6,000.—J. J. Haarer, Commissioner of Public Works.

Hibbing, Minn.—Township Board of Stunz is considering building of road.

Grenada, Miss.—City will pave streets by contract; concrete curbing around public square.

Meridian, Miss.—Board of Supervisors is considering \$200,000 bond issue for good roads.

Excelsior Springs, Mo.—Council has passed ordinance for paving portion of Kansas City ave.

St. Joseph, Mo.—Board of Public Works is considering grading of Holman st.

Libby, Mont.—Town Council has passed street grading ordinance; as cement sidewalk ordinance has been passed, bids will be asked.

Hastings, Neb.—Plans are being prepared for brick and tarvia paving in Third st. and Lincoln ave. paving district.

Omaha, Neb.—Park Commissioners of Omaha, Douglas and Sarpy counties are considering constructing public macadam boulevard from Omaha to Ft. Crook.—C. D. C. Jewett, Secretary.

Haddonfield, N. J.—Borough Solicitor Henry S. Scovel is preparing resolution to be offered in Council calling for election in July on \$150,000 bonds for improvement of streets.

Tullytown, N. J.—Council is considering proposal to accept available aid from State to macadamize main street, recently completed from Bristol to borough line.

Albany, N. Y.—Bids have been ordered advertised for improvement of Myrtle ave., W. Lawrence and Morris st.

Buffalo, N. Y.—Governor Hughes has signed bill appropriating \$1,000,000 to aid in construction of stone road from New York to Buffalo.

Ashland, O.—Bids will be received July 16 for \$19,000 road improvement bonds.—Jay Wilson, Clerk Montgomery Township.

Canton, O.—Plans will be prepared by City Engineer P. H. Weber for grading and paving N. Rex st.

Cincinnati, O.—City Engineer Shipley has estimated cost of paving Cass ave. with macadam at \$19,734.25.

Cincinnati, O.—Park Commission is considering construction of boulevard through E. Walnut Hills, Hyde Park and Mount Lookout.

Lockland, O.—Council has passed resolutions for constructing sidewalks, curbs and gutters and improving portions of two streets.—Clifford Brown, Mayor; C. E. Troy, Clerk of Council.

Mansfield, O.—Sandusky County will vote June 30 on \$24,000 bonds for pike improvements.

Norwalk, O.—Norwich Township is considering election on \$50,000 road improvement bonds.

Portsmouth, O.—Engineer Samuel Harper is preparing survey and will soon let contract for construction of one mile of State road work in Scioto County.—Lafayette Jones, County Surveyor.

Urbana, O.—City will issue bonds for paving Public square with brick, on concrete base, one square block.—C. S. Pratt, City Engineer.

Van Wert, O.—City is considering paving Washington st. with brick, on stone or concrete foundation, or asphalt pavement, on concrete foundation; cost \$11,000.—Alfred Albright, City Engineer.

Ashland, Ore.—Citizens will vote July 2 on \$30,000 bonds for paving streets.

Milwaukee, Ore.—City will soon let contracts for improvement of streets at cost of \$50,000.—A. N. Dowling, City Auditor.

Altoona, Pa.—Citizens will vote July 26 on \$260,000 street and sewer improvement bonds.

Beaver Falls, Pa.—Bids will be asked for construction of proposed Sharon road.—Carl Donaldson, City Engineer.

Chester, Pa.—Council is considering curbing and paving sidewalks on Hyatt, 18th and other streets.

Clifton Heights, Pa.—Citizens will vote on \$20,000 loan for highway improvements.—A. F. Damon, City Engineer.

Douglasville, Pa.—Citizens are urging the Pennsylvania and Reading Railway Co. to construct subways under grade crossings.

Waynesburg, Pa.—Council has given first reading to ordinance for paving several sections of streets.

Woodlawn, Pa.—Citizens will vote on \$81,000 bonds for improvements, including grading of streets.

Westerly, R. I.—Town has voted \$18,000 to cut down Union st.—Thos. McKenzie, Civil Engineer.

Woonsocket, R. I.—Finance Committee is considering \$3,800 appropriation for macadamizing Highland st. and \$6,200 for Woodland road.

Chattanooga, Tenn.—Board of Aldermen has ordered \$100,000 bond issue for paving of 13 streets.

Memphis, Tenn.—City will pave Cooper st. with asphalt; J. H. Weatherford, City Engineer, is preparing estimates; ordinances are being considered for paving Jefferson ave., cost \$22,000; Bellevue bld., \$25,000; Central st., \$20,000; Lamar st., \$15,000.

Ripley, Tenn.—City is considering laying of concrete walks in residence section.

South Pittsburg, Tenn.—City is considering street improvements; will grade and macadamize road to Richard City and construct concrete arch across sewers on Cedar ave.

Alvin, Tex.—Citizens have voted \$12,000 bonds for street improvements.

Atlanta, Tex.—Cass County, Precinct No. 7, has voted \$40,000 bonds for road improvement.

Ennis, Tex.—Ennis Precinct has voted \$225,000 to build good roads.

Lockhart, Tex.—Citizens have voted \$40,000 bonds for road improvements in Martindale and Reedsville District.

Marlin, Tex.—City will award contract at once for paving six blocks in business section.—F. S. Heffner, Mayor.

Mexia, Tex.—Limestone County is considering election on bonds for good roads in Precinct No. 4.

Rotan, Tex.—Citizens have voted in favor of street improvements.

Sour Lake, Tex.—Citizens have voted \$35,000 bonds for improvement of public roads in Precinct No. 2.

Sweetwater, Tex.—Citizens have voted in favor of street improvements.

Terrell, Tex.—Paving of Moore ave. is being urged.

Chatham, Va.—Citizens will vote on \$16,000 bonds to macadamize Main st. and enlarge High School building.

Lynchburg, Va.—Bids are asked for 58,179 ft. of Southern heart pine lumber to be used in repairing walks.

Chehalis, Wash.—Construction of an 18-ft. concrete roadway from city limits of Chehalis to Centralia is being considered; cost about \$30,000.

Everett, Wash.—State Highway Commissioner has advertised for bids for building 7-mile section of State aid road in this county.

Puyallup, Wash.—Bids will be asked for paving E. Pioneer ave.; plans are being prepared for Stewart st. paving.—D. P. Wheeler, Engineer.

Seattle, Wash.—Council has decided to grade Fillmore and Juneau sts.

Spokane, Wash.—Council has passed ordinance for paving 9th ave., 40-ft. roadway.—Morton Macartney, City Engineer.

Beckley, W. Va.—City is considering \$40,000 bond issue for street improvements.

Point Grey, B. C., Can.—Ratepayers will vote on \$20,000 pavements by-law.

CONTRACTS AWARDED

Decatur, Ala.—Paving, to Goodrich & Crinkley, \$26,696.40; cement sidewalks, to W. M. Leftwick & Co., Nashville, \$11,924.

Little Rock, Ark.—Resurfacing Center st., to Memphis, Tenn., Asphalt and Paving Co.

Los Angeles, Cal.—Grading, constructing cement curbs and sidewalks in Arlington Square Tract, to R. H. McCray, 234 W. 28th st., \$17,000.

San José, Cal.—Improvement of 1st st., to Ransome-Crummey Co.; regrading, 2c. per sq. ft.; gutters, 18c. per sq. ft.; curbing, 30c. per lin. ft.; pavement, 18c. per sq. ft.; catch basins, \$35 each; inlets, \$5 each; conduit pipes, 18c. per lin. ft.

Bridgeport, Conn.—Paving a portion of Stratford ave. with brick, to Metropolitan Paving Brick Co., \$1.25 per sq. yd.; furnishing cement, to Wheeler Howes, \$1.46 per bbl.; sand, to Burns Co., \$1.55 per sq. yd., and stone, \$1.40 per ton.

East Hartford, Conn.—Construction of sidewalks and necessary curbing, to L. C. Baker, New Britain, as follows: Grading, \$850; concrete walk, \$8,702.50; concrete curb, \$480.

West Hartford, Conn.—Laying several thousand yds. of sidewalks and curbing, to L. C. Baker, New Britain, \$10,032.50.

Willimantic, Conn.—Building 10,000 lin. ft. gravel road in South Coventry, to Ahear Bros.

Fernandina, Fla.—Paving Center st., to Southern Paving and Construction Co., Chattahoochee, Tenn.—G. L. Baltzell, City Clerk.

Chicago, Ill.—Asphalt street repairs, to Barber Asphalt Paving Co., 76c. per sq. yd.; city fixes price for binder at \$5 a ton and for concrete at \$7 per cu. yd.

Naperville, Ill.—Resurfacing with asphalt oil 83,300 cu. yds. of macadam roads, to Illinois Good Roads Co., \$6,600.

Joliet, Ill.—Paving Plainfield ave., to G. M. Campbell, \$2,000.

Ottawa, Ill.—Paving three streets and one alley, to Illinois Cement Construction Co., Springfield, alley south of Main st., \$2,958.48; for Clinton st. and Superior st. paving, \$30,097.42, and for Center Ottawa, \$35,714.71.

Smithboro, Ill.—Road, to Omer William-son, Greenville, \$4,500.

Decatur, Ind.—Macadam roads, to E. H. Faust, city, \$6,926 for A. J. Sipe road; to Merryman & Fugate, Monroe, \$2,672 for John J. Soldner road; to Wm. Reppert, city, \$5,452 for McAlhenny road; to E. H. Faust, city, \$6,303 for Raudenbush road.

Fort Wayne, Ind.—Paving, John St., to Barber Asphalt Co., \$1.68 per sq. yd.; Wildwood ave., macadam, to J. F. Brooks Paving Co., \$4.15 per lin. ft.; two alleys, to O. F. Menefee, paving \$2.60 per sq. yd.; relaying 124 sq. yds. of brick now down, 50c.

Huntington, Ind.—Jonathan Rinearson road, Grant County, to Landes & Wilson, \$8,300.

Des Moines, Ia.—Paving, as follows: To O. P. Herrick, 107 Locust st., W. 4th st., between Court ave. and Vine st., with brick, at \$2.839 per sq. yd., and from Vine to Elm st., with creosote block, \$2.04 per sq. yd.; East Walnut, with creosote block, \$2.43 per sq. yd.; East 5th st., with brick, \$1.99 per sq. yd., and 19th st., with concrete, \$1.69 per sq. yd.; to J. W. Turner Improvement Co., Beaver ave. with brick, \$1.78.9 per sq. yd.

Fort Dodge, Ia.—Paving 17th st., to St. James Tile Manufacturing Co., \$1.62 per sq. yd.; total \$47,790; extra grading 40c.; average haul, 5c.

Waterloo, Ia.—Paving 11th st., West, to Bryant, McLaughlin Paving Co.

Hutchinson, Kan.—Roads, to Wheeler & Keleher, Garden City, 15 miles, with sand clay and sand-gumbo, 15c. per cu. yd. for dirt excavation, 40c. per sq. yd. for claying, \$8 a cu. yd. for plain concrete work, \$15 for reinforced concrete work and \$1.25 per ft. for corrugated iron pipe.

Independence, Kan.—Paving, to Hipple & McSpadden, city, \$27,441, and F. P. Del-lone & Co., city, \$32,686.

Lexington, Ky.—Resurfacing number of roads, to Home Construction Co., city, \$34,000.

Natchitoches, La.—Sidewalks, 34,900 sq. yds., to G. W. Price Co., Beaumont, Tex., 28c. per lin. ft. for curbing and 10½c. per sq. ft. for walk.

Hagerstown, Md.—Paving blocks, 70,000, to J. I. Brett, of Hammond Fire Brick Co., Fairmont, W. Va.; 70 tons of sharp sand and 50 bbls. of Portland cement, to Cushwa & Sons.

Havre de Grace, Md.—Building macadam road between this city and Aberdeen, to Havre de Grace Construction Co.

Towson, Md.—Paving 3d and Foster aves., Highlandtown, to P. Reddington & Son, 325 St. Paul st., Baltimore, \$12,500.

Detroit, Mich.—Paving Collins st. with concrete, to R. D. Baker Co., Home Bank Bldg., \$33,993; Hart ave. with cedar, to T. E. Currie, 345 Pennsylvania ave., \$12,494; St. Paul ave., Section No. 2, with cedar block, to W. W. Hatch & Co., Hammond Bldg., \$7,868; also Section No. 1 from Vandyke to Parker with cedar, \$2,572.

Grand Rapids, Mich.—Paving S. Ottawa st. with brick, to Carpenter & Anderson, \$12,964.85.

Ironwood, Mich.—Paving 20,000 sq. yds. tar macadam, to Paddy McDonnell, Duluth, Minn., \$1.99 per sq. yd.

Ishpeming, Mich.—Roads, two miles, to Gus Fredin, \$6,360.

Albert Lea, Minn.—Crescoted wood block paving, 12,423 sq. yds., on Main st. to Fielding & Shipley, 216 W. University ave., St. Paul, \$2.35 per sq. yd.

Havelock, Neb.—Sidewalks, to J. C. Reid, 8,000 sq. ft. $\frac{3}{4}$ -in. surface material, $1\frac{1}{2}$ ¢; 8,000 sq. ft. 1-in., $17\frac{1}{2}$ ¢.—O. W. Barnes, City Engineer.

Atlantic City, N. J.—Contract for constructing Absecon Somers Point section of Ocean blvd. amounting to about \$196,000 has been revoked.

Union Hill, N. J.—Repairing all damage to asphalt paving on streets, to Barber Asphalt Co., \$1.49 per yd.

Albany, N. Y.—Hauling 1,000 cu. yds. of trap rock, to M. F. Dollard, \$1.39 per cu. yd.

Albany, N. Y.—Furnishing 24,000 gals. road oil, to H. W. Roberts & Co., Utica, 17.25¢ per gal.; M. F. Dollard, 19¢.

Ft. Terry, N. Y.—Constructing a road to Inland Harbor and power plant at post, to Eldridge Construction Co., Mystic, Conn., \$4,774.

Little Falls, N. Y.—Paving N. 2d st., to Warren Bros., \$1,519.60.

Rye, N. Y.—Paving 4,250 sq. yds. with bituminous macadam on Milton road, to Wm. F. McCabe, White Plains, \$4.042.

Schenectady, N. Y.—Paving River and Bedford roads, to Schenectady Contracting Co.

Schenectady, N. Y.—Paving Hegeman st. with asphalt, to Schenectady Contracting Co., \$2.20 per sq. yd., and to Union Paving Co., Weaver st., \$2.20 per sq. yd. for asphalt and \$2.90 per sq. yd. for granite.

Utica, N. Y.—Paving Green st. with sheet asphalt, to Barber Asphalt Paving Co., \$6,753.73.

Hickory, N. C.—Building new streets and cement sidewalks, to Hart, Abel & Co., \$55.498 less 3½ per cent.

Cincinnati, O.—Improvement of Montgomery pike with granite, in Norwood, to Edward Ryan on his bid of \$43,720; other bidders were W. F. Garretson, \$46,190; John Snyder, \$46,592; John Reubel Construction Co., \$48,340; M. Sullivan & Sons Construction Co., \$48,380; Kirchner Construction Co., \$50,260; Thomas P. Strack, \$50,460; James M. McJoynt, \$51,614; engineer's estimate, \$53,380.

Youngstown, O.—Grading and sewerage Delaware ave., to Hannon Bros., for \$1,131.70; sewerage of Forest ave., to Gartland Bros., \$764.60; paving Lane ave., to S. H. DeGroodt, \$7,701.75.

The Dalles, Ore.—Paving 4th st., to Warren Construction Co., \$1.87 with bitulithic.

Corapolis, Pa.—Constructing 50,000 ft. stone sidewalks, to R. L. Harper, city, 13¢, sand finish; 13½¢ ligonier, and 25¢ cu. yd. for excavating above curb level.—E. C. Harper, Borough Secretary.

Philadelphia, Pa.—Asphalt repairs to streets occupied by car tracks, to Filbert Paving and Construction Co., 20¢ per sq. yd., or 75¢ per yd.

York, Pa.—Paving three streets with asphalt, to Filbert Paving Co., South George st., \$1.75 per sq. yd., and portion of West York ave., \$1.69; to Central Supply and Construction Co., Harrisburg, East Market st., \$1.67.

North Yakima, Wash.—Paving, to cost \$130,000, to Independent Asphalt Paving Co.

Seattle, Wash.—Paving 4th ave., to Holt & Jeffery, \$86,447.

Tacoma, Wash.—Grading and laying sidewalks on South 36th st., to Coast Contracting Co., \$7,570; cement sidewalks on Ainsworth ave., to same firm, \$7,398.

Madison, Wis.—Asphalt paving, University ave., to Andrews Asphalt Paving Co., Hamilton, O., \$44,662; other bidders, J. F. Hill, Chicago, \$47,922; White Construction Co., Milwaukee, \$46,877.—O. S. Norsman, City Clerk.

Milwaukee, Wis.—Removing defective wooden sidewalks and replacing them with cement concrete walks, to N. J. Donahue, 322 E. North ave., city, $11\frac{1}{4}$ ¢ per ft., First Ward; to Milwaukee Sidewalk Co., Matthew Bldg., 11 1-3¢ per sq. ft., Second Ward; to N. J. Donahue, 11¢ per sq. ft., Third Ward; to Milwaukee Sidewalk Co., 11 1-3¢ per sq. ft., Fourth Ward; to Czarpata Construction Co., 1189 Kinnickinnic ave., city, 10¢ per sq. ft., Fifth Ward; to

N. J. Donahue, 12¢ per sq. ft., Seventh Ward; to Granite Sidewalk Co., 674 Forest Home ave., 10¢ per sq. ft., Eighth Ward; to Jos. E. Dean, 406 Lafayette pl., 11 2-5¢ per sq. ft., Ninth Ward; T. J. Scannel, 467 Frederick ave., 11¢ per sq. ft., Tenth Ward; to Granite Sidewalk Co., 9½¢ per sq. ft., Eleventh Ward.

London, Ont., Can.—Pavement on Ridout st., to Barber Asphalt Co., \$3,792.

Niagara Falls, Ont., Can.—Laying of the macadamized road between Niagara Falls and Bridgeburg, cost \$95,000, to Messrs. Cook & Menzie, of Niagara Falls, two sections, and to H. Campaign, of Niagara Falls, other half; Niagara Falls Park Commission have charge of work.

BIDS RECEIVED

Denver, Col.—West Denver Paving District No. 1, with sandstone blocks: Dennis Gibbons Construction Co., 209 Mercantile Bldg., \$21,440; Heckert & Muller, \$21,591; Denver & Pueblo Construction Co., \$22,634; J. Fred Roberts, \$22,967.

Washington, D. C.—Cement sidewalks, 75,000 sq. yds., Holton Construction Co., lowest bidder, 9½¢ per sq. yd. in city limits, and 1.18 outside city limits.

Chicago, Ill.—Paving, American Asphalt Paving Co., lowest bidder on one-half mile on Auburn st., \$1.67 per sq. yd., and for 10,100 sq. yds. N. 44 Court and West Irving Park blvd., \$1.80 per sq. yd.; for 10,600 sq. yds. of 4-in. cresote block pavement on an 8-in. concrete foundation, around new city hall and county buildings, as follows, prices given being per sq. yd. and total, respectively: Union Paving Co., \$3.35, \$37,907; Citizens' Construction Co., \$3.51, \$39,588; the Ryan Co., \$3.53, \$39,795; James A. Sackley & Co., \$3.60, \$40,492; R. F. Conway Co., \$3.66, \$41,193; Parker-Washington Co., \$3.72, \$41,814.

Pensacola, Fla.—Resurfacing National Cemetery road, C. H. Turner Construction Co., city, 1-in. limestone, 21½¢ per sq. yd.; 2-in. screenings, 36½¢ per sq. yd.; Algeron Blair, Montgomery, Ala., 1-in. limestone, 18¢ per sq. yd.; 2-in. screenings, 34½¢ per sq. yd.; Henry Monk, city, 2-in. screenings, 23 9-10¢ per sq. yd.; Blount Construction Co., city, \$7.96 concrete per cu. yd.

Marion, Ind.—Constructing two brick highways, Soldiers' Home blvd. and 38th st. improvement, in Center Township, as follows: Soldiers' Home blvd., 5,870 ft. long, Daniels & List Co., at \$5.45 per lin. ft.; W. J. Simmons bid on both roads, in all 12,870 ft., a total of \$38,970.

Ft. Madison, Ia.—Paving with vit. brick block about 16,000 sq. yds., Cameron, McManus & Joyce, Keokuk, \$2.07 per sq. yd.; Ft. Madison and Appanoose Stone Co., \$2.16 per sq. yd., and John Downs, \$2.03 per sq. yd.

Niagara Falls, N. Y.—Paving Ferry ave., Read-Coddington Co., for Hassam \$23,066, Trinidad or sheet asphalt \$24,599, Newcasle block asphalt \$29,504.60; Warren Bros. Co. for Purtilal or bitulithic grand \$27,769.70, Warren Acme grand \$23,783.90; Henry P. Burgard Co. for test brick \$24,654, Hassam \$18,523, Bermudez or Trinidad asphalt \$23,632, Newcastle or Barber block asphalt \$27,209.

Akron, O.—Paving one mile of Arlington road, Kelley & Markley, Pittsburg, lowest bidders, \$15,581 for concrete, \$16,057 for stone curbing, and \$16,743 for brick; paving, lowest bidders: H. R. Russell, on Berry st., \$14,742, with stone curbing, \$13,638, concrete curb, and \$13,507, combination curb and gutter; Wildes & Davidson, with stone curb, Main st., \$8,333; concrete curb, \$8,045, and \$7,739 for combination curb and gutter.

Bucyrus, O.—Paving Mansfield st., as follows: L. P. Batterfeld, city, \$13,943; A. P. Caldwell, Gallon, \$15,287; P. Drake & Son, Marion, \$12,618; J. W. Scott, Marion, \$13,089; Hofstetter & Dawson, Marion, \$11,871; H. S. Enck, Lima, \$13,920; L. R. McMichael, city, \$12,279; J. L. Smith, Lorain, \$13,387; E. A. Freshwater, Chester, W. Va., \$13,605, and Toledo Asphalt Co., Toledo, \$19,050.

Beaver Falls, Pa.—Constructing 6,900 ft. of road in Chippewa Township, John F. Howley & Co., Pittsburg, macadam, \$17,316.05, brick \$26,858; the Standard Bituminous Co., of New York, N. Y., \$23,297, macadam; R. D. Hunter, Beaver, Pa., macadam, \$16,789.21, brick, \$23,297, concrete macadam top, \$22,718; Rhinehart Bros., East Liverpool, O., wire cut brick top, \$23,940; J. T. McGuire & Co., New Brighton, macadam, \$15,858, brick, \$27,511; Ridge Bros. & Co., Pittsburg, macadam, native stone bottom, \$14,724, brick, \$22,387.

Philadelphia, Pa.—Repairs to streets occupied by car tracks only: (a) Barber Asphalt Paving Co., (b) Filbert Paving & Construction Co.: Asphalt, less than 500 yds., (a) 63¢, (b) 75¢; excess of 500 yds., (a) 63¢, (b) 20¢; concrete foundation, (a) 70¢, (b) 69¢; bituminous foundation, (a) 50¢, (b) 46¢. Granite blocks, on sand or gravel, (a) 23¢, (b) 12¢; on concrete, (a) 23¢, (b)

15¢; without foundation, (a) 23¢, (b) 25¢. Vitrified bricks, on sand or gravel, (a) 30¢, (b) 25¢; on concrete, (a) 90¢, (b) 93¢; without foundation, (a) 30¢, (b) 25¢. Granite blocks, new, concrete foundation (a) \$3.25, (b) \$3.35; on sand or gravel, (a) \$3.10, (b) \$3. Vit. brick, new, concrete foundation, (a) \$2.30, (b) \$2.95; on sand or gravel, (a) \$2.15, (b) \$1.45. Resetting curb and crossing stones, (a) 30¢, (b) 20¢; grouting joints, etc., (a) 18¢, (b) 30¢; additional thickness, (a) 15¢, (b) 30¢.

York, Pa.—Paving South George st., as follows: Filbert Co., asphalt, \$1.78 per sq. yd., brick \$2.15; Barber Co., asphalt \$1.77; Standard Co., bitulithic, \$2.24; East Market st., Juniata Co., bitulithic, \$2.23; Filbert Co., asphalt \$1.69, brick \$2.17; Central Co., asphalt, \$1.67; Hassam Co., patent material, \$1.70; Standard Co., bitulithic, \$1.79; West York ave., Filbert Co., asphalt \$1.69, brick \$2.17; Central Co., asphalt, \$1.67; Juniata Co., bitulithic, \$2.25; Barber Co., asphalt, \$1.79; Standard Co., bitulithic, \$2.37; Hassam Co., patent paving, \$1.70.

Dallas, Tex.—Paving Commerce st., Municipal Paving Co. bid \$3.20 per sq. yd. for cresoted pine blocks on concrete, \$1.85 for bois d'arc blocks, to be furnished by city, and \$2.62 for brick vit. blocks; Texas Bitulithic Co. bid \$3.18 for cresoted pine and \$2.60 for brick vit. blocks.

Beloit, Wis.—Street paving and grading, Prairie and Euclid aves., Pleasant, Cross and 8th sts. and East Grand ave., A. E. Rutledge, Rockford, Ill., \$67,795.72; Federal Improvement Co., Chicago, \$68,252.66; Western Improvement Co., Racine, Wis., \$64,838.28; O'Farrell Contracting Co., Dubuque, Ia., \$72,902.58.

Superior, Wis.—Paving of John ave., low bidders, 3d to Winter, cresoted blocks, E. A. Dahl, \$27,428.09; concrete, Diffor & Riches, \$23,562.63; brick, Welsh & Johnson, \$26,686.53; bitulithic, Warren Bros., \$27,751.53. Winter to Belknap, brick, Welsh & Johnson, \$20,231.34; cresoted blocks, E. A. Dahl, \$21,160.58; bitulithic, Warren Bros., \$21,034.84; concrete, Diffor & Riches, \$17,148.08.

Victoria, B. C., Can.—Construction of permanent sidewalks on portions of Maple, Quadra, Work, Blanchard and Caledonia sts., City Engineer, \$19,707.21; A. Pike, \$18,015.40; F. Stedman, \$17,532.

SEWERAGE

Phoenixville, Ariz.—Citizens have voted issuing bonds to construct a sewer system.—Olmstead & Gilleen, Grant Bldg., Los Angeles, Cal., Engineers; Lloyd B. Christy, Mayor.

Los Angeles, Cal.—Board of Public Works has decided to build three sanitary sewers.

Porterville, Cal.—City will lay about 12 miles of vit. salt glazed pipe lateral sewers and several miles of mains at cost of \$40,000; bids for the bonds are about to be asked at once.—Irvin H. Althouse, City Engineer.

San Diego, Cal.—Plans have been prepared by City Engineer Capps for sewer system to be installed in University Heights, Chollas Valley and district near Albatross st.

Putnam, Conn.—Plans by Chandler & Palmer, of Norwich, have been accepted for the sewer system; Highway commissioner will at once begin work of construction.—G. Allen Hawkins, Chairman.

Wilmington, Del.—City has sold \$200,000 sewer and street bonds to N. W. Harris & Co., New York.

Fort Myers, Fla.—Citizens will vote August 16 on \$50,000 bonds for construction of sewer system.

Pensacola, Fla.—Extension of storm sewer at cost of \$11,000 has been recommended.

Athens, Ga.—Plans are being prepared for sewers in the western portion of city.—J. W. Barnett, City Engineer.

Rome, Ga.—City is considering election on \$50,000 bonds for sewers.

Pocatello, Ida.—Citizens have voted \$175,000 bonds to construct system of sewers.

Danville, Ill.—Board of Local Improvements has decided to construct storm water sewer on Fairchild st.; cost \$29,000.

Hillsboro, Ill.—City proposes to construct sewer system, probably of pipe; cost about \$37,000.—J. A. Trimble, Charleston, Engineer; F. Phinchester, City Clerk.

Monmouth, Ill.—Council is considering construction of sewer.

Peoria, Ill.—Council has decided to construct sewers in Districts 2 and 3.

Princeton, Ill.—City will construct filtration beds, improve septic tanks and extend sewerage system.—W. S. Shields, Chicago, Engineer.

Wheaton, Ill.—City will let contracts soon for vit. pipe and cement storm sewer, 24 to 60-in. in diameter, estimated cost approximately \$35,000, also sewers and drains for North district in Wheaton to cost about \$50,000.—A. L. Webster, City Engineer.

Cannelton, Ind.—City will construct sewer in one of main streets.

Indianapolis, Ind.—Board of Public Works has confirmed resolution for eight small sewers; cost \$20,100.

Marion, Ind.—Preliminary plans are being prepared by City Engineer T. E. Petrie for 24 to 36-in. vit. pipe sewer in 20th st.; cost \$8,000.—F. Heck, Chairman Board of Public Works.

Terre Haute, Ind.—Council has authorized \$40,000 sewer bond issue.

Battle Creek, Ia.—Construction of sewer system is being considered.

Perry, Ia.—Bids have been rejected for construction of 1,050 ft. of 24-in. pipe, 685 ft. of 18-in. pipe, 250 ft. of 12-in. pipe, 700 ft. of 8-in. pipe and 600 ft. of open ditch.—Chas. Wilson, City Engineer.

Spirit Lake, Ia.—Lytle Co., Lytle Block, Sioux City, has completed plans for about two miles of vit. pipe sanitary sewers.

Winterset, Ia.—W. K. Palmer Co., Engineers, 1767 Dwight Bldg., Kansas City, Mo., have been engaged by city to make surveys and prepare plans and specifications for complete sanitary sewer system.

Lawrence, Kan.—Council has ordered construction of lateral sewer in Ontario st.—E. D. Brooks, City Clerk.

Parsons, Kan.—Plans for septic tank and filter bed are being considered by State Board of Health.

Topeka, Kan.—Belt line sewer to cover the entire southwestern and western part of city including several of the new additions and connecting as well as relieving existing sewers, is being planned by City Commissioners.

Yates Center, Kan.—J. S. Worley Co., 206 Reliance Bldg., Kansas City, Mo., will prepare plans for proposed sewer system and purification plant; cost \$50,000.

Centerville, Md.—City has selected Robert B. Morse, Palatka, near Garrison ave., Baltimore, as Engineer in Charge of constructing sewer system.

Laurel, Md.—Citizens will vote July 5 on \$35,000 bonds to build sewerage system.

Revere, Mass.—Town has appropriated \$7,200 for sewer construction; \$15,000 appropriation rescinded.

Florence, Neb.—John P. Crick, 310 McCague Bldg., Omaha, has been selected as Engineer for proposed sewer system.

Niagara Falls, N. Y.—Acting Mayor Hallett has urged need of more than \$100,000 worth of sewers.

Williston, N. D.—City will construct five blocks of sewer on 2d ave. West.

Cincinnati, O.—Cost of sewerage Knox st. has been estimated at \$2,933.30.

Circleville, O.—Council has passed ordinance for constructing one-half mile or more vit. pipe or concrete sewer in Mill st.; cost \$1,800.—J. W. Low, Director of Public Service.

Findlay, O.—City is considering construction of sanitary sewer in Marshall st.

Hamilton, O.—City Civil Engineer Frank E. Weaver has submitted estimate of \$6,275.25 for storm sewer on Shuler and Bender aves. and Grand Blvd.

Miamisburg, O.—Engineer Riley has estimated cost of construction of sewer on three streets at \$16,000.

Niles, O.—City will construct submain sanitary and lateral sanitary sewers in various streets.—Homer Thomas, City Clerk.

Altoona, Pa.—Citizens will vote July 26 on \$260,000 sewer and street improvement bonds.

Beaver Falls, Pa.—Bids will be asked for construction of proposed Groveland sewer.

Clifton Heights, Pa.—Citizens will vote on \$50,000 loan for sewerage system.

Quakertown, Pa.—Town is preparing to establish a sewerage system to cover the entire borough and surroundings.

Woodlawn, Pa.—Citizens will vote on \$81,000 bonds for improvements, including installation of sewerage system.

Woonsocket, R. I.—Board of Aldermen has passed in concurrence resolution appropriating \$10,700 for sewer construction.

Union City, Tenn.—City is having plans prepared by C. H. Jenks, Fayette, Miss., for construction of sewer system; bids will be asked very soon.

Amarillo, Tex.—Estimates have just been completed, based upon preliminary survey of E. L. Dalton, Engineer in Charge, that only \$10,000 in addition to \$40,000 available will be necessary to extend present sewer system to corporate limits in all directions.

Beaumont, Tex.—Council has adopted plans and will at once ask bids for construction of proposed sewer system under recent \$50,000 bond issue.

Dallas, Tex.—Residents of Commerce st. have petitioned for construction of sanitary sewer.

Houston, Tex.—F. L. Dormant, Consulting Engineer, will prepare plans and specifications for proposed storm water sewer on Calhoun st.

San Antonio, Tex.—City Engineer F. M. Giraud has recommended building of additional storm water sewers.

Tacoma, Wash.—Municipal Commission is considering possibility of arranging to

construct an extension of trunk line sewers of city so all sewage will be dumped into bay at deep water.

Adamston, W. Va.—City has granted franchise to John C. Southern to construct and operate sewer system.

Oakville, Ont., Can.—F. Aird Murray, Toronto, is preparing plans for proposed sewage disposal plant.—Chas. A. Bradbury, Town Clerk.

Regina, Sask., Can.—All bids received by Council for constructing north portion of the trunk sewer have been rejected; work is to be done by the city, through its engineering department; lowest bid was \$208,463.

CONTRACTS AWARDED

Hartford, Conn.—Construction of short section of sewer in Gully Brook, to Charles H. Slocumb, \$2,055.

St. Maries, Idaho.—Construction of a trunk sewer and laterals, to Moore & Washtop, Spokane; cost about \$8,000.

Deland, Ill.—Drain tile, to Arthur Birk, 1645 E. Main st., Decatur, \$10,774, for following work: Furnishing, hauling and laying drain tile: 4,000 ft. 27-in., 4,000 ft. 24-in., 3,733 ft. 22-in., 3,167 ft. 16-in., 1,000 ft. 14-in. and 700 ft. 12-in.; all tile above 16 inches in diameter to be salt glazed, vitrified, first-class drain tile; all tile 16 inches and smaller to be red shale tile, first-class quality.—W. J. Day, Bement, Engineer.

Evansville, Ind.—Sewer on Lafayette ave., to G. L. Hughes.

Clinton, Ia.—Building sewer on 5th ave., to Thos. Corey & Son, \$8,311.70.

Frederick, Md.—Constructing 1,000 ft. storm water sewer, to Coblentz & Klipp; materials purchased.

Boston, Mass.—Constructing pipe sewers in Washington and Fuller sts., Dorchester, to Jos. B. O'Rourke & Co., 83 Journal Bldg., \$4,095.

Westfield, Mass.—Building section 18 of the storm water sewer, to E. B. Roberts, Boston, Mass., at following bid: Trench and lay, 18x8-in. pipe, 550 lin. ft., \$1.70; 15x8-in. pipe, 360 lin. ft., \$1.59; 12x8-in. pipe, 130 lin. ft., \$1.45; 18-in. pipe, 475 lin. ft., \$1.20; 12-in. pipe, 395 lin. ft., \$1.10; 8-in. pipe, 200 lin. ft., 60c.; 6-in. pipe, 300 lin. ft., 60c.; brick masonry, 120 cu. yds., \$14.75; total \$4,770.

Ridgewood, N. J.—Construction of storm water sewers, consisting of 1,522 ft. 3 x 5-ft. and 520 ft. of 3 x 4-ft. reinforced concrete sewers, also 3,430 ft. of 36, 30, 24, 18 and 12-in. vit. pipe with necessary manholes, etc., to Union Building and Construction Co., Passaic, \$26,119.—H. J. Harder, Village Engineer.

New York, N. Y.—Constructing outlet sewer under pier at the foot of W. 40th st., to Jos. Moore, 5 E. 42d st., \$12,694.

Hamilton, O.—Sycamore st. sanitary sewer, to Garver Contracting Co., \$4,605.

Jefferson, O.—Building disposal plant, to Baldwin Bros., Cleveland, about \$19,000.

Marcus Hook, Pa.—Sewer system and pumping station, to Cantrell Construction Co., Philadelphia, \$17,600.

Monaca, Pa.—Building 12-in. sanitary sewer in several streets, to J. L. Connor, Freedom, \$6,451.50.

Florence, S. C.—Sewerage system, to Johnson-Matthews Construction Co., \$69,368.

Columbia, Tenn.—Building Helm's branch sewer, to John Broderick & Sons, Nashville, \$5,750.

Seattle, Wash.—Sewers have been awarded as follows: To G. Savistio, on W. 63d st., \$4,234; to Allain & Hull, on California ave., \$18,915, and to Krough & Jensen, on 37th ave., \$2,997.

Tacoma, Wash.—Constructing Monroe st. storm sewer, to L. Y. Stayton, \$22,000, using cement pipe.

Tacoma, Wash.—Sanitary sewers, vit. pipe, to Galluci & De Rose, \$2,729.

Princeton, W. Va.—Constructing sewers, to T. Towles & Co., city, \$30,000.

Fort William, Ont., Can.—Sewers, to T. McCallum, 10-14, \$3,900; to Stewardson Bros., 10-13, \$16,280, and 10-12, \$12,759.

BIDS RECEIVED

Washington, D. C.—Construction of sewers A to I in the District, (a) E. G. Gummel, (b) Warren F. Brenizer Co., (c) James A. Coyle, all of Washington; ordinary excavation sewer "A," (a) \$1, (b) 60c.; "B," (a) \$1.10, (b) 75c., (c) 80c.; "C," (a) \$1, (b) 80c.; "D," (a) \$1, (b) 75c.; "E," (a) \$1.10, (b) \$1; "F," (a) \$1, (b) 65c.; "G," (a) \$1.15, (b) \$1; "H," (a) \$1, (b) 75c.; "I," (a) \$1.45, (b) 70c.; sewer brick masonry, "A," (a) \$14, (b) \$13; "B," (a) \$14, (b) \$13; "C," (a) \$14, (b) \$13; "D," same; "E," same; "H," same; "I," (a) \$14, (b) \$14; "G," same; "I," same: 18-in. diameter sewer pipe, "A," (a) \$1.09, (b) 85c.; "B," (a) \$1.09, (b) 85c.; "C," (a) \$1; 12-in. diameter sewer pipe, "C," (a) 73c.; "D," (a) 73c.; "F," same; "H," same; "E," (a)

73c., (b) 75c.; "G," same; vit. brick masonry, (a) \$23, (b) \$20, sewer "I," only; concrete masonry, "D," (a) \$7.50, (b) \$7, sewer "I," only; 6-in. sub-drain pipe, (a) 30c., (b) 30c.

Marseilles, Ill.—Construction of sewers, to cost \$27,000, Green & Sons, Ottawa, \$26,680; Wm. Moran & Co., Joliet, \$26,744; J. J. Dougherty, Ottawa, \$29,954; detailed bid of Green & Sons, the lowest bidder, was as follows: 6,100 ft. 30-in. pipe, \$2.42; 180.5 ft. manholes, \$2; 8 cu. yds. concrete, \$12.50; 600 lbs. wrought iron, 3c.; 5,400 lbs. cast-iron, 2c.; 6,475 cu. yds. rock excavation, \$1.75.

Brooklyn, N. Y.—Furnishing material and constructing sewers in Ocean ave., with outlet sewer in Ave. L, in East 21st st. and in Ave. M, and those submitted were on the percentage basis as follows: Engineer's estimate, \$27,180; Sherman & Nickolas, city, 97½ per cent; Merrill Ruckgaber Co., 30 Church st., New York, 132½ per cent; Donegan & Redmond, city, \$98.98 per cent; Z. E. Kelly, city, 107½ per cent; Pansio & Burke, city, 95 per cent; Newman & Carey, city, 93.74 per cent; Culp & McCauley, city, 93.47 per cent; the work includes 3,260 lin. ft. 48, 42, 36 and 30-in. brick sewers, and 2,120 lin. ft., 24, 15 and 12-in. pipe sewer; 3,000 lin. ft. 6-in. house connections, 41 manholes, 25 M. ft. lumber for sheeting and bracing, and 25 M. ft. for foundation planing.

Lebanon, O.—Laying 6,900 ft. sewer, Price & Hurley, Marion, lowest bidders, \$5,424.96; manholes, \$28; rock excavation, \$2.50 per cu. yd.; other bidders, W. F. Hass, \$5,445.08; W. H. Boyd, \$5,545.91; Wm. F. Pfauzer, \$5,906.60; Huonker & Williams, \$6,095.80; John Dempsey, \$9,661.72; Donato Delise, \$9,973.47.

Tacoma, Wash.—Monroe st. storm sewer, E. M. More, lowest bidder, at \$18,200; other bidders, L. Y. Stayton, \$22,000; B. W. Kibler, two bids, \$25,210 and \$24,870; the Keasel Construction Co., two bids, \$22,734 and \$23,768; storm sewer No. 194, Galluci & De Rose, \$5,699; the Lister Construction Co., \$5,974; B. W. Kibler, \$5,910; Keasel Construction Co., two bids, \$4,926 and \$5,348; Warter Bros., two bids, \$5,275 and \$5,475; Tiganalli & Payne, two bids, \$4,000 and \$4,900; vit. clay pipe will be used.

Sheboygan, Wis.—Intercepting sewer, Robert Nelson, Racine, lowest bidder; cost about \$25,000.

Ottawa, Ont., Can.—Supplying of 10 flexible c.-i. joints as per plans and specifications, in connection with the new intake pipe; Gordon Law, Ottawa, \$1,650, accepted; Victoria Foundry, Ottawa, \$1,950; Wm. Hamilton Co., Peterborough, \$2,080; Staveley Coal and Iron Co., Ltd., Chesterfield, England, \$2,475; John Inglis Co., Toronto, \$2,590; Chaudiere Foundry Co., Ottawa, \$2,680; Thos. Lawson & Sons, Ottawa, \$3,250; Canada Foundry Co., Toronto, \$3,300.

WATER SUPPLY

Bessemer, Ala.—Council has granted water franchise to Birmingham Water and Light Co.

Montgomery, Ala.—City will proceed with the construction of 5,000,000-gal. reservoir.—A. R. Gilchrist, Engineer; W. F. Black, City Clerk.

Opelika, Ala.—Citizens will vote July 14 on \$85,000 bonds for construction of water works and electric light plant.

Blytheville, Ark.—Construction of water plant is being considered.

Imboden, Ark.—Dr. E. N. F. Sullivan, representing People's Bank, has purchased and will improve Imboden Power and Light Co.'s plant; water mains will also be extended.

Paragould, Ark.—Improvement District No. 2 has decided to construct water works.—J. R. Thompson, Mayor.

Sacramento, Cal.—Supervisors have passed ordinance granting franchise to East Sacramento Water Co. to supply water to residents of East Sacramento; plans are being prepared for tower; cost \$15,000.

Carbondale, Col.—Citizens have voted to construct water system; cost \$27,500.

Denver, Col.—Board of Aldermen is considering ordinance calling election Sept. 6 on \$8,000,000 bonds to build entirely new water system.

Greeley, Col.—T. D. Jones, Denver, has prepared plans for reservoir to be constructed at a cost of \$2,000,000 in Weld County.

La Veta, Col.—City will expend \$10,000 in improving and enlarging system.

Kirkwood, Ga.—Citizens will vote on \$60,000 bonds to lay water mains.

Rome, Ga.—City is considering election on \$35,000 bonds to build pumping station, including building, boilers, pumps, etc.; \$10,000 for meters and \$30,000 for distribution.

Kendrick, Ida.—Citizens will vote on bonds for installation of water system.

Beecher, Ill.—Village Board has decided

to install water works system; air pressure system adopted.

Flora, Ill.—Citizens are considering construction of water works plant and sewerage system.

Springfield, Ill.—Mayor Schnepf is favorable to improvement of water works system at cost of \$150,000.

Auburn, Ind.—City will sink two additional wells.

Oakdale, Ind.—City is considering replacing of 6-in. water mains with 12-in. pipe.

South Bend, Ind.—Plans for installation of water system in Howard Park, which will include laying of larger mains throughout park, has been completed by Board of Park Commissioners.

Carson, Ia.—Citizens will vote on \$15,000 bonds to install water system.

Sioux City, Ia.—F. W. Coppelem, Minneapolis, Consulting Engineer, will suggest plans for better fire fighting facilities in Morningside.—Councilman G. B. Healy, Superintendent of Parks and Public Property.

Mulvane, Kan.—Citizens will vote on bonds for installation of water system.

Pittsburg, Kan.—Citizens will vote on \$300,000 bonds to construct water plant.

Wellington, Kan.—Citizens have voted \$300,000 bonds to improve water plant.

Pollock, La.—Council has completed arrangements to install first-class system of water works; power and supply will be furnished by J. F. Ball Lumber Co.

Winnfield, La.—City has decided to lay additional water mains.

Topsham, Me.—Water system will be extended to Topsham Heights; cost \$14,000.

Baltimore, Md.—Board of Awards has approved new specifications for pumping station for the high-pressure pipe line under construction for the fire department; bids will be asked soon.

Agawam, Mass.—Town has appropriated \$16,000 for laying water pipes.

Feeding Hills, Mass.—Citizens have voted to lay 8-in. pipe line to Feeding Hills Center and approximately 500 ft. of 6-in. pipe south, 500 ft. east and 500 ft. west; about \$16,000 bonds will be issued.

Wyandotte, Mich.—Bids will soon be received for construction of water works extensions and improvements; cost \$17,000.

Cloquet, Minn.—Water works improvements costing \$60,000 are contemplated; bids for the bonds will be received about July 1 and for the construction about Aug. 1.—J. A. E. Grenier, City Clerk; S. L. Moyer, Superintendent.

Osyka, Miss.—City will issue \$20,000 of bonds for construction of water works and electric light plant; Xavier A. Kramer, Engineer, Magnolia, has prepared plans.—Clinton Thompson, Mayor.

University, Miss.—University of Mississippi will spend about \$15,000 in boring wells, constructing water works and extending the sewer system.—Prof. J. H. Dorroh, Engineer.

Malden, Mo.—Archer Roehm & Co., Engineers, have prepared plans for water works and electric light plant; cost \$30,000; bids will soon be asked.

St. Louis, Mo.—City is considering \$100,000 expenditure to protect water supply conduits.

Fairbury, Neb.—Citizens have voted \$115,000 bonds to purchase water system.

Roselle Park, N. J.—Borough Council is considering proposition that borough consolidate with Roselle, Cranford and Kenilworth, in building and maintaining municipal water and lighting plant.

Wharton, N. J.—City will ask bids Sept. 15 for constructing the water works; probable cost \$40,000.—W. H. Force, City Clerk.

Dexter, N. Y.—Plans have been prepared for installation of \$40,000 water plant.

Perry, N. Y.—Taxpayers have voted that \$12,000 be used to enlarge pumping station and to install new pump at the water works.

Syracuse, N. Y.—Plans for new dam in the Oswego River at Phoenix have been completed by State Engineer's office and are to be considered by Advisory Board of Consulting Engineers.

Lorain, O.—All bids have been rejected for improvements to water works system; following are bidders: Great Lakes Dredge and Dock Co., \$119,270; F. W. Abbott & Co., \$45,665; Starke Dredge and Dock Co., \$53,487; A. Q. Thatcher, \$53,072.—L. B. Johnston, City Clerk.

Orreville, O.—Board of Public Service has had plans prepared for extension of water mains; cost \$8,600. H. D. Wyre is interested.

Youngstown, O.—Council is planning to make extensive improvements to water plant.

Joseph, Ore.—City has issued \$20,000 bonds for installation of municipal water works system.

Bristol, Pa.—Borough Council has approved the plans for a municipal water and filtration plant; bond issue of \$100,000 has been authorized.

Catasauqua, Pa.—Citizens will vote on \$15,000 bonds for water main extensions.

Clifton Heights, Pa.—Citizens will vote on \$50,000 loan for water and electric light plant.

Doylestown, Pa.—Council is considering erection of standpipe.

Tarentum, Pa.—Borough officials are considering building of municipal water works; cost about \$100,000.

Mount Pleasant, S. C.—Council is considering construction of water works.

Beaumont, Tex.—Jefferson County Commissioners are considering granting 50-year franchise to W. C. Teter, of New York, President of Beaumont Water Works Co., to construct water mains, standpipes and reservoirs in Jefferson County.

Miles, Tex.—Bids will be received July 1 by H. W. Bigeler, Mayor, for \$20,000 water works bonds.

Murray, Utah.—G. T. Ingersoll, of Salt Lake City, has estimated cost of water works at \$51,255 and power plant on Big Cottonwood Canyon at \$56,860.

Norfolk, Va.—Norfolk County Water Co. is planning improvements to water supply.

Clarkston, Wash.—Council is discussing water question; E. E. Libby, President of the Improvement Co., has offered to take over proposition and supply water to city; also to install hydrants for fire purposes.

Guler, Wash.—Charles Pearson has filed water right on Singleton Creek with purpose of furnishing town of Trout Lake with water from that stream.

Adamston, W. Va.—City has granted franchise to John C. Southern to construct and operate water works.

Waterloo, Wis.—Jas. H. Thompson, 324 Dearborn st., Chicago, Ill., is preparing plans for improvements to water works; cost about \$25,000; bids for the construction will be asked as soon as plans are completed.—F. E. Peschel, Village Clerk.

Ladysmith, B. C., Can.—Council has passed a by-law to raise \$25,000 to improve water works system.

Nanaimo, B. C., Can.—Concrete reservoir costing \$20,000 is to be constructed by day labor.—Allan Waters, Engineer.

Ottawa, Ont., Can.—On recommendation of Engineer A. Hazen, New York, surveys will be made as to the cost of bringing water supply from McGregor's Lake to city.

St. Thomas, Ont., Can.—Board of Water Commissioners has decided to ask Council to issue \$40,000 debentures to cover proposed extensions.

CONTRACTS AWARDED

El Centro, Cal.—Constructing municipal water system, as follows: 400 tons c.-i. pipe and specials and hydrants and valves, to U. S. Cast Iron Pipe Co., San Francisco, for \$21,644; tower and tank, to Des Moines Bridge and Iron Co., Des Moines, Ia., \$6,450; distillate engines, to Delta Improvement Co., city, \$5,468; unloading, hauling and laying pipe, to C. B. Folsom, city, \$6,143.

Hammond, Ind.—Extension of water supply intake in Lake Michigan, including furnishing and laying of approximately 3,000 lin. ft. of 42-in. c.-i. hub and spigot pipe weighing 450 lbs., per ft., furnishing and setting the strainer head at outer end of intake and connecting inner end with two present intakes by means of one branch of about 200 lin. ft. of 30-in. pipe weighing 250 lbs. per ft. and another branch of about 400 lin. ft. of 20-in. c.-i. hub and spigot pipe weighing 150 lbs. per ft., and to furnish all pipe fittings, lead, jute and other necessary materials, to Calumet Construction Co., 234 La Salle st., Chicago, Ill., \$47,140; other bidder, the Great Lakes Dredge and Dock Co., Chamber of Commerce, Chicago, \$47,970.—J. H. Kasper, City Engineer.

Hazlehurst, Miss.—Construction of steel reinforced concrete reservoir 40 ft. diameter, 12 ft. deep and for 4-in. steel reinforced concrete wall on inside of old reservoir, to G. T. Hall, \$2,286; excavating, to J. J. Spitchley, 22½c. per cu. yd.

Huntsville, Mo.—Constructing water works, according to plans by L. G. Knapp & Co., New York Life Bldg., Kansas City, c.-i. pipe and specials, to U. S. Cast Iron Pipe Co., St. Louis, as follows: 159 tons 4 to 22-in. and 7 tons 4 to 23.3-in., \$29.20 per ton; 67 tons 6 to 34-in., \$27.95 per ton, and 102.5 tons 8 to 48-in., \$28.20 per ton; 5.1 tons specials, \$55 per ton; hydrants and valves, to Ludlow Valve Co., Kansas City, at a total of \$935; tower and tank, to Chicago Bridge and Iron Co., Chicago, Ill., \$4,999; construction work, laying of pipe, setting of hydrants, etc., to G. Jaeger, Rich Hill, \$11,160.

Rahway, N. J.—Construct driven wells at New Jersey Reformatory, to L. S. Moore, Stockton, \$3.50 per ft. for 12-in. boring, and \$1.50 per ft. for 8-in. boring.

Portland, Ore.—Constructing proposed 30-in. submerged pipe line across Willamette River, to Robert Wakefield & Co., \$58,790.

Milwaukee, Wis.—Artesian well on grounds of Municipal Tuberculosis Hos-

pital, Wauwatosa, to N. H. Gray & Bro., 243 Madison st., \$2 per ft.

Waterloo, Wis.—Drilling 10-in. well and furnishing casing therefor, to E. A. Mendenhall & Son, city, \$1.90 per ft. first 400 ft., \$3 per ft. next 300, and casing, \$1.80 per ft.

Cheyenne, Wyo.—Building reinforced concrete-lined reservoir, to the Block and Laird Construction Co., Denver, Col., \$29,800.

BIDS RECEIVED

Ft. Logan H. Roots, Ark.—Constructing 150,000-gal. steel water tank, Des Moines Bridge and Iron Works, Des Moines, Ia., two bids, \$16,500 and \$14,000; R. M. Galbriath, Pine Bluff, Ark., \$14,592; Wm. A. Dillon, New York, N. Y., \$19,000; Reumelt-Dawley Mfg. Co., St. Louis, Mo., \$15,150; United Iron Works, Iowa, Kan., 2 bids, \$17,000 and \$15,000; Chicago Bridge and Iron Works, Dallas, Tex., two bids, \$14,700 and \$12,925.

Jacksonville, Fla.—Construction of a 3,000,000-gal. concrete reservoir in the water works yard, corner Orange and Laura sts., J. D. McGee, Sumter, S. C., \$47,850; E. B. Garretson & Co., Jacksonville, \$44,997; Bryan & Co., Jacksonville, \$49,300; Logan Concrete and Engineering Co., Jacksonville, \$54,892.38; A. J. Cessery and Monk Bros., Jacksonville, \$50,865; Lightman & McDowell, Nashville, \$66,800; company's plans, \$52,075; James Bruin & Co., and T. J. Brown, Jacksonville, \$48,594; Piedmont Construction Co., Atlanta, \$54,660; company's plans, \$53,500; F. W. Long & Co., Jacksonville, \$68,770; company's plans, \$63,807; Phillips & Turnbull, Jacksonville, \$63,940.

New York, N. Y.—Furnishing and delivering double-nozzle fire hydrants, A. P. Smith Mfg. Co., Newark, N. J., \$91,104; John Fox & Co., 253 Broadway, city, \$103,840; Kennedy Valve Mfg. Co., 57 Beekman st., city, \$96,859.

Olean, N. Y.—Water pipe and lead (a) 18-in., (b) 6-in., (c) flexible, (d) specials: U. S. Cast Iron Pipe and Foundry Co., (a) \$24.20, (b) \$24.80, (d) 2½c.; R. D. Wood & Co., (a) \$25.90, (b) \$25.90, (c) \$36; (d) 2½c.; John Fox & Co., (a) \$26.40, (b) \$26.40, (d) 2½c.; Massillon Iron Co., (a) \$25.80, (b) \$26; Chas. Miller & Son Co., (a) \$25.40, (b) \$25.40, (d) 2½c.; Donaldson Iron Co., (a) \$26.10, (b) \$27, (d) 2½c.

Cheyenne, Wyo.—Reinforced concrete lined reservoir, bids opened June 21: (1) Trenching, laying, backfilling and completing all connections to and from reservoir; (2) furnishing, erecting and completing fence around reservoir; (3) furnishing all other material and doing all other work necessary in completing reservoir; (4) total: The Black & Laird Construction Co., (1) \$3,200, (2) \$2,600 (3) \$24,000, (4) \$29,800, accepted; Colorado Engineering and Construction Co., Greeley, Col., (4) \$31,200; J. A. Warren, Cheyenne, (1) \$6,317, (2) \$1,760, (3) \$24,699, (4) \$32,776; Finger & Kelley, (1) \$2,500, (2) \$1,500, (3) \$29,000, (4) \$33,000; Williams & Williams, Scott's Bluffs, Neb., (1) \$3,000, (2) \$1,825, (3) \$29,780, (4) \$34,605.—F. A. Bacon, City Clerk.

Halifax, N. S., Can.—Furnishing 10,000 ft. of 6-in. water pipe, H. A. Drury & Co., Montreal, \$31.65 per ton of 2,000 lb., delivered; Gaudry & Co., Quebec, \$31.90; Wm. Stairs, Son & Morrow, \$31.20, delivered at Halifax, or \$30.20 at New Glasgow; Messrs. Hankin, Montreal, \$29.80, delivered; W. D. Robinson, Montreal, \$29.20; R. D. Wood & Co., Philadelphia, \$21.50 f.o.b. cars at foundry, freight guaranteed \$3.70 duty extra; D. V. Stewart, Glasgow, \$31; two 9-in., 50 6-in. and 3 3-in. valves; H. A. Drury & Co., 9-in., \$29.20 each; 6-in., \$17.53; 3-in., \$10.23; McAvity & Son, St. John, 9-in., \$30; 6-in., \$10; 3-in., \$5; R. D. Wood & Co., Philadelphia, 9-in., \$19.10; 6-in., \$9.85; 3-in., \$4.95; last tender called for the firm's own special make of valve and was not considered.

LIGHTING AND POWER

Bessemer, Ala.—Council has granted lighting franchise to Birmingham Water and Light Co.

Montgomery, Ala.—Richard Tillis purchased Citizens' Light and Power Co.'s plant and will enlarge.—Paul Whiting, General Manager.

Opelika, Ala.—Citizens will vote July 14 on \$85,000 bonds for construction of electric light plant and water works.

Tuscaloosa, Ala.—Council has granted franchise to Providence Gas Co. to pipe natural gas into city.

Imboden, Ark.—Dr. E. N. F. Sullivan, representing People's Bank, has purchased and will improve Imboden Power and Light Co.'s plant.

Berkeley, Cal.—Great Western Power Co. will be granted franchise to supply power in city for period of 35 years.

Edgewood, Cal.—R. E. Cavanaugh is planning to install larger electric plant.

Lodi, Cal.—Installation of municipal gas plant is being considered.

San Diego, Cal.—Citizens will vote Aug. 9 on \$3,500,000 bonds for establishment of gas and electric plant and for proposed international exposition.

San José, Cal.—Bids will be advertised for lighting city hall, electroliners and clock tower for one year.

Willows, Cal.—City Trustees will ask for bids for franchise for establishing gas plant and system.

Norwalk, Conn.—Fire District Commissioner, East Norwalk, has been authorized to purchase 35-h.p. motor and a 37½-kw. generator; cost not to exceed \$2,000.

St. Augustine, Fla.—St. Johns Light and Power Co. will expend about \$25,000 in proposed improvements to electric light and power plant; additional equipment has been ordered.

Atlanta, Ga.—Atlanta Hydro-Electric Power Co. will construct 700-ft. dam across Tugaloo River, to develop 25,000 h. p.

Lafayette, Ga.—J. B. McCrary & Co., Atlanta, will prepare plans for installation of electric light plant.

Macon, Ga.—City Electrician Humphries, working in connection with Light Committee of City Council, will make careful inspection of suburbs, including South and East Macon, Heights and Vineville, and ascertain just how many lights should be installed and where.

Ottawa, Ill.—Council has granted gas franchise to Illinois Valley Gas and Electric Co.

Streator, Ill.—Illinois Valley Gas and Electric Co. has secured 50-year franchise to furnish gas and electricity.

Quincy, Ill.—Quincy Gas, Electric and Heating Co. has asked Council for franchise.

Bedford, Ind.—Bedford Power Co. will construct power plant and dam; cost about \$500,000. H. C. Stillwell, Anderson, is interested.

Hartford City, Ind.—American Gas and Electric Co., New York, N. Y., has purchased the electric lighting plant and will construct a brick or cement power house.

Indianapolis, Ind.—Geo. M. Brill, of Chicago, Ill., has been selected to prepare plans for improvements to plant of People's Light and Heat Co., at Alabama and 16th sts.

Muncie, Ind.—Board of Works has decided to install 18 electric lights at intersections of alleys in uptown district.

Nevada, Kan.—W. C. Gunn, Fort Scott, has asked Council for gas franchise.

Whitecastle, La.—City granted franchise to Dunlap Electric Light Co., Plaquemine, to furnish electric lighting; company will also supply lighting for Turnerville and Addis.

Amory, Miss.—City will expend \$65,000 for improvements to electric light plant and installation of water works system.—Solomon Norcross Co., Atlanta, Ga., Engineer in Charge.

Osyka, Miss.—City will issue \$20,000 bonds for construction of electric light system and water works; Xavier A. Kramer, Magnolia, has prepared plans.—Clinton Thompson, Mayor.

Carthage, Mo.—Spring River Power Co. will construct substation to furnish electricity to quarries along north side of Spring River.

Malden, Mo.—Archer Roehm & Co., Engineers, have prepared plans for electric light plant and water works; cost \$30,000; bids will soon be asked.

Billings, Mont.—Citizens have voted to grant Dr. Carl Schroeter franchise to furnish gas; \$20,000 will be expended.

Salem, N. J.—Council has passed ordinance granting Salem Electric Co. 25-year franchise.—Clarence L. Cole, Atlantic City, Attorney.

Toms River, N. J.—Ocean County Gas Co. has applied for franchise at Island Heights Borough, and will also seek other franchises from shore towns from Toms River south on Ocean Highway to Barnegat village and west through pines of Lakehurst; if successful will lay 25 to 30 miles of trunk line pipes besides mains in several villages.

Lima, N. Y.—Town Board has granted a franchise to the Livonia Light and Heating Co. to lay wires.

Wilmington, N. C.—Board of Audit and Finance has passed appropriation for Tungen arches in downtown district.

Akron, O.—Northern Ohio Traction and Light Co. will erect \$2,000,000 power plant in this city.

Youngstown, O.—David Miles, of Street Lighting Commission, has reported in favor of construction of plant at the water works for auxiliary lighting at cost of \$25,000; report accepted.

Coleman, Tex.—Citizens have voted \$20,000 bonds to enlarge electric light plant.

Corpus Christi, Tex.—Corpus Christi Street Railway Co. will construct electric power and light plant.

Richmond, Va.—Council has adopted ordinance providing appropriation of \$20,000 for illumination of Broad st.—Chas. E. Bolling, City Engineer.

Port Arthur, Ont., Can.—By-law for \$30,000 for extension and equipment of municipal telephone service and also for \$10,000 for extension of the electric lighting system have been voted.

St. Catharines, Ont., Can.—Ontario Power Co., of Niagara Falls, has applied for franchise to pole and wire streets, and to sell and distribute electric energy.

Tofield, Man., Can.—Citizens have passed by-law to spend \$4,000 on preliminary works for water works and \$3,500 on sidewalks.

CONTRACTS AWARDED

Redondo Beach, Cal.—Furnishing and erecting three 30-in. double-suction centrifugal pumps and couplings for direct connection to steam engines for Pacific Light and Power Co., to G. W. Price Pump and Engine Co., \$8,380.

Brownville, Me.—Lighting town with electricity, to Brownville Electric Light and Power Co., \$20 each for 25 lights.

Virginia, Minn.—Installing White Way for Chestnut st., to Lawrence Goodspeed Electric Co., city, \$5,499.

Beaver Falls, Pa.—Lighting city, to Beaver County Light Co.

North Smithfield, R. I.—Lighting town, to Woonsocket Electric Machine & Power Co.

Ft. Crockett, Tex.—Installation of electric lighting system at this post, to F. E. Newberry Electric Co., Century Bldg., St. Louis, Mo., \$11,944.

Winnipeg, Man., Can.—Building McPhillips st. substation, No. 2, to J. W. Astley, city, \$11,423; conduit, to G. M. Gest, Montreal, Que., \$40,000.

BIDS RECEIVED

Alameda, Cal.—Installing boiler in electric light plant, Chas. C. Moore & Co., \$10,835; United Iron Works, \$7,540; Risden Iron Works, \$9,500.

Dayton, O.—Lighting city streets and alleys, (a) for equipment and maintenance, (b) gas equipment and maintenance: Wellsbach Lighting Co., of America, per light, per year, 5-year contract, (a) \$11.85, (b) \$21.85; 10-year contract, \$10.85 and \$20.85, respectively; Dayton Gas Co., (b) \$22.85; 10-year contract, \$21.85; minimum number of light about 1,400.

FIRE EQUIPMENT

Derby, Conn.—Second Ward is urging erection of fire station.

Tampa, Fla.—Fire Committee is urging erection of more fire stations.

Augusta, Ga.—Fire Committee is considering erection of engine house at 15th st. and Walton way.

Macon, Ga.—Auto chemical apparatus will be installed in South Macon fire house when completed.

Canton, Ill.—City is considering extension of water mains in Orendorff addition.

East St. Louis, Ill.—Fire Chief Chas. M. Burke has recommended purchase of two new hook and ladder trucks and new motor-driven engine for the fire department; also purchase of 3,000 ft. of hose and erection of three new engine houses.

Freeport, Ill.—City will erect \$9,000 fire station in western part of city about October.—J. A. R. Daniels, City Engineer.

Moline, Ill.—Fire Chief John J. Hank has recommended installation of hose in all public schools.

Peoria, Ill.—Fire Marshal I. N. Worm has recommended purchase of 5,000 ft. of 2½-in. cotton hose, 800 ft. of 1-in. rubber chemical hose and 600 ft. of 1¼-in. cotton hose.

Philo, Ill.—Erection of combined engine house and city hall is being considered.

Marion, Ind.—Architect H. Elder has prepared plans for erection of fire station.—F. Heck, Clerk Board of Works.

Council Bluffs, Ia.—City will receive bids about June 27 for purchase of 1,000 ft. of fire hose and aerial truck.—Charles Nicholson, Fire Chief.

Catonsville, Md.—Fire company is considering need of equipment.—W. T. Muth, Chief.

Emmettsburg, Md.—Need of equipment for fire department is being considered.

Grafton, Mass.—Selectmen are considering purchase of three hand-drawn chemicals: \$400 each.

Lowell, Mass.—Board of Aldermen has voted \$1,000 for improving signal system of fire department.

Lowell, Mass.—Committee on Fire Department has voted to recommend purchase of auto chemical and hose wagon for Oakland district, also one for the Highland and Ayer city district; Chief Hosmer will get estimates for auto or flying squadron similar to the one now in service used by salvage corps; to repair fire alarm \$1,000 will be asked for.

Swampscott, Mass.—Town has voted to purchase 500 ft. of hose.

Detroit, Mich.—Chittenden & Kottling, 1805 Ford Bldg., are preparing plans for truck house to be erected in the North Woodward district, cost \$83,000, and also for one at Michigan ave. and Scotten ave., cost \$23,000.—S. T. McGraw, Chairman Fire Commission.

Lansing, Mich.—Council has authorized purchase of \$7,500 auto engine.

Gulfport, Miss.—Contract will be let at once for building hose house for G. M. Foote Hose Co.—H. D. Shaw, City Engineer.

South Omaha, Neb.—City is considering erection of two fire stations.—F. H. Good, City Clerk.

Elizabeth, N. J.—Fire Commissioners are urging erection of three fire stations.

Jersey City, N. J.—Fire Board has adopted resolution asking Board of Finance to appropriate \$25,000 for fire house to be located at Van Nostrand and Bergen aves.

Madison, N. J.—Fire Committee has recommended establishment of new company and purchase of auto chemical engine.—G. W. Downs, Mayor.

Cassadaga, N. Y.—Purchase of chemical engine is being considered.

Newburgh, N. Y.—City has decided to erect fire house on Du Bois st.

New York, N. Y.—Boards of Estimate and Aldermen have approved plans for betterment of fire department; plans call for \$207,000 expenditure for fire alarm system for Manhattan and Bronx, \$150,000 for Brooklyn, and \$10,000 for Queens; \$43,000 will be spent in fire alarm boxes; plans have been prepared for erection of 25 fire houses in Manhattan and Bronx and 10 in Brooklyn; apparatus will be purchased.—Rhinelander Waldo, Fire Commissioner.

Palmyra, N. Y.—Citizens have voted \$2,500 bonds to repair fire apparatus.

Perry, N. Y.—Taxpayers have voted \$20,000 bonds to erect fire station.

Akron, O.—Council has decided to issue \$4,500 bonds to purchase triple combination motor fire apparatus for Station No. 7.

Beaver Falls, Pa.—Erection of fire house is being considered; Fire Committee will purchase 500 ft. of hose and other supplies.

Chester, Pa.—Council has finally passed ordinance to purchase aerial truck.

Harrisburg, Pa.—Enola Fire Co. will erect fire house at corner of Columbia and Enola roads.—H. M. Blosier, Chairman Building Committee.

Williamsport, Pa.—Council has passed ordinance carrying appropriation for purchase of 1,000 ft. of fire hose; purchase of auto chemical engine is being considered.

Walterboro, S. C.—City has organized two fire companies.—E. T. H. Schaffer, Chief.

Aberdeen, S. D.—Council will install a steam fire engine; cost \$5,250.

Norfolk, Va.—Board of Control has asked \$8,000 additional appropriation for improving and repairing Queen st. fire engine house.

Everett, Wash.—Fire Chief Al. Taro has recommended purchase of two engines and supply of hose.

Hoquiam, Wash.—Council is considering disposal of present apparatus and purchase of modern equipment.

Marshfield, Wis.—Bids will be received June 30, noon, by M. G. Fleckenstein, City Clerk, for 500 ft. of cotton rubber lined single and double jacket fire hose 2½-in. internal diameter, coupled complete in sections of 50 ft.

Humboldt, Sask., Can.—Plans have been prepared for fire and town hall, to cost from \$20,000 to \$22,000.

CONTRACTS AWARDED

Macon, Ga.—Fire house, to Wilder & Paullin, \$5,500.

Maysville, Ky.—Installing fire alarm system, to Gamewell Electric Co., New York.

Eveleth, Minn.—Hose, to W. S. Nott & Co., Minneapolis, 500 ft. Paragon hose, \$1.10 per ft.; to New Jersey Carspring and Rubber Co., Newark, N. J., 500 ft. Edison brand, \$1 per ft.; to Diamond Rubber Co., Dayton, O., \$1,000 Multiple brand, \$1 per ft.

Hibbing, Minn.—Furnishing wire for fire alarm system, to Standard Underground Cable Co.

Brooklyn, N. Y.—Labor and materials for establishing, equipping and building underground fire alarm telegraph system, to Hickey Contracting Co., No. 12 Elm st., New York City, \$9,495.15.

Franklin, Pa.—Fire hose, 2-in., to Boston Belting Co., Exposition Bond Crank, 78c. per ft.

BIDS RECEIVED

Marion, Ind.—Erecting fire station at 14th and McClure sts., James Long, \$6,829.87; S. L. Plato, \$7,560.46; Paso Peele, \$4,650; L. L. Johnson & Son, \$7,650; Barnes Bros., \$7,861.40; H. B. Crumrine, \$7,630.50; E. J. Tiulander, \$6,467; George W. Marsh, \$6,250.

BRIDGES

Sacramento, Cal.—Board of Supervisors has adopted plans for construction of bridge approach at Dry Creek; cost \$1,420.

Clinton, Ill.—Board of Local Improvements is considering erection of \$4,000 bridge on E. Main st.

Edwardsport, Ind.—Davies and Knox Counties Commissioners have decided to construct \$17,000 bridge over White River.

Michigan City, Ind.—County Commissioners have instructed City Engineer Miles to prepare plans and specifications for four concrete bridges.

Muscataine, Ia.—Plans will be prepared for erection of large concrete bridge over Mad Creek at E. 2d st.

Winchester, Ky.—County Commissioners of this and Powell County are planning erection of joint bridge over Lulbegrud Creek at West Bend.

Kansas City, Mo.—Engineers Waddell and Harrington have recommended repairs of bridges over Blue River and Brush Creek.

Hackensack, N. J.—Board of Freeholders will consider erection of bridge at Ridgefield Park.—Robert Conklin, Chairman Bridge Committee.

Watertown, N. Y.—Citizens will vote on bonds for construction of proposed Jackson st. bridge.

Bellevue, O.—Logan County Board of Commissioners is considering erection of several small bridges.—W. S. Jones, County Auditor.

Dayton, O.—City is considering construction of a concrete bridge across Mad River.

Defiance, O.—County Commissioners have authorized County Auditor to advertise for bids for the new bridges to cross canal at Deatrict and Thurston sts.

Toledo, O.—Lucas County Board of Commissioners will make improvements to two bridges; cost about \$2,000.—C. J. Sanzenbacher, County Auditor.

Urbana, O.—Champaign County Board of Commissioners is considering construction of several small bridges; cost \$4,000.—Jas. Swisher, County Surveyor.

Wapakoneta, O.—Auglaize County Board of Commissioners will construct concrete and steel bridge near Noble Township; also a single span steel and concrete bridge over canal, near Wapakoneta.—F. A. Runkle, County Surveyor.

Reading, Pa.—New bids will be asked for repairing Weidner bridge.

North Smithfield, R. I.—Town has voted \$4,000 for maintenance and repairs of bridges and highways.

South Pittsburg, Tenn.—City will construct concrete arch across sewers on Cedar ave.

Laredo, Tex.—Commissioners' Court is considering the erection of four bridges in Llano County.

Bradshaw, W. Va.—McDowell County Commissioners will construct bridge across Dry Fork.

Clarksburg, W. Va.—County Commissioners have decided to erect \$25,000 bridge over Elk Creek.

CONTRACTS AWARDED

Hartford, Conn.—Widening and repairing Farmington ave. bridge, to Charles H. Slocomb, \$1,000; fifty days' time; actual cost of labor and materials to be added to above price.

Wadena, Minn.—Bridge over Wing River, to Continental Bridge Co., \$1,395.

Cincinnati, O.—Constructing a concrete bridge over C. L. & N. R. R. tracks at Whittier st., to Kirchner Construction Co., 8th and Plum sts., \$6,052.

Milton, Pa.—Bridge over Chillisquaque Creek, to J. S. McIlvane, Chambersburg, \$1,100.

Dallas, Tex.—Construction of reinforced concrete bridge over Cedar Creek at Forest Park, Oak Cliff, to Standard Engineering and Construction Co. on its bid of \$8,000; five other bids, ranging as high as \$11,300.

BIDS RECEIVED

Bridgeport, Conn.—Building concrete arch bridge in Boston ave., Sperry Engineering Co., New Haven, bridge \$25,575, fill 65c. per cu. yd.; T. F. Ley Co., Springfield, Mass., bridge \$27,250; Concrete Block Construction Co., city, bridge \$23,721, fill 65c. per cu. yd.; Schwerer & Luther Co., New York, bridge \$20,365, fill 75c. per cu. yd.; Mason-Hilton Co., New York, bridge \$26,200, fill 71c. per cu. yd.; Hennebique Construction Co., New York, bridge \$18,700, fill 80c. per cu. yd.; F. W. Abbott Co., New York, bridge \$23,760, fill 46c. per cu. yd.; D. Cuzzo, New York, bridge \$25,900, fill 45c. per cu. yd.; E. F. Saxton, New York, bridge \$21,977, fill 80c. per sq. yd.; Toole & Sunderlin, city, bridge \$21,569, fill 10c. per cu. yd.

MISCELLANEOUS

Los Angeles, Cal.—Parkinson & Bergstrom, Security Bldg., have prepared plans for remodeling Central Park at estimated cost of \$50,000; bids will be asked for 300,000 bricks and 200 bbls. of cement.

Los Angeles, Cal.—Health Department is considering purchase of automobile.

Oakland, Cal.—Plans by Architects Palmer & Hornbostel, 63 William st., New York City, have been accepted for erection of \$1,000,000 city hall.

Ocean Park, Cal.—The Ocean Park Improvement Co. is considering construction of pier; cost about \$600,000.

Sacramento, Cal.—Police Committee is considering purchase of auto for Police Chief.—City Trustee J. T. Murphy, Chairman.

Philo, Ill.—Erection of combined city hall and engine house is being considered.

New Orleans, La.—City has had plans prepared by Lagarde & Burke, 409 Wells Fargo Bldg., for Carnegie Library; cost \$22,000.

Baltimore, Md.—Archer & Allen, Architects, have prepared plans for \$25,000 branch Enoch Pratt Free Library building to be erected at Gorsuch and Taylor aves.

Detroit, Mich.—Architects Chittenden & Kottling have prepared plans for erection of shelter building for Department of Parks and Boulevards.—M. P. Huribut, Commissioner.

Lansing, Mich.—Superintendent of Public Works Wilson is considering purchase of flush wagons.

Greenbush, Minn.—Erection of \$2,000 town hall is being considered.

Tylertown, Miss.—City is receiving plans for erection of jail.

St. Louis, Mo.—Council is considering \$7,000 appropriation for establishment of municipal horseshoeing shop.

Atlantic City, N. J.—Council has decided to build public bath house at New York and Baltic aves.

Phillipsburg, N. J.—Sanitary Committee desires information and prices of garbage and ash wagons and equipment; town may

collect its own garbage instead of contracting.—R. P. Howell, Town Engineer.

Trenton, N. J.—Council has decided to issue \$50,000 bonds to purchase river front lands.

Buffalo, N. Y.—Joint Committee from Public Health Board and Chamber of Commerce will recommend erection of \$1,650,000 hospital on E. Ferry ave.

Lockport, N. Y.—Board of Supervisors has unanimously voted in favor of erection of a county tuberculosis hospital as agitated by Tuberculosis Committees of Niagara Falls and Lockport.

New York, N. Y.—Public Service Commission has sent request to Board of Estimate for \$490,000 appropriation to increase facilities for entering and leaving subway in stations, on which is to be spent \$150,000 in lengthening platforms.

Niagara Falls, N. Y.—Incineration plant for disposal of the garbage of city is being discussed now that Council and Board of Public Works have asked City Engineer to report on best method of disposal.

Palmyra, N. Y.—Citizens have voted \$2,250 for improvements to village hall.

Cincinnati, O.—Plans have been prepared and bids will be asked by Service Director Sundmaker for erection of Cutter st. bathhouse.

Cincinnati, O.—Park Commissioners will ask Council to call election on \$1,000,000 bonds for park purposes.

Columbus, O.—Council has voted \$3,000 appropriation for improvement of Schiller Park and \$6,000 for erection of comfort stations.

Reading, Pa.—Berk County Grand Jury has recommended erection of \$100,000 insane asylum and enlargement of court house.

West Hazleton, Pa.—Council has passed ordinance for purchase of police patrol wagon.

Austin, Tex.—City Commission has decided to build park on East ave., East Austin.

Buena Vista, Va.—Council has decided to purchase street sprinkler.

Tacoma, Wash.—Mayor Fawcett has recommended establishment of municipal docks.

Vancouver, B. C., Can.—Public Works Engineering Co., Beck Bldg., Portland, Ore., is in market for about 75 M. fire brick, roof tiling, two set wagon scales, CO₂ recorders; temperature testing apparatus, one 150 ft. chimney, two water tube boilers, 150 h. p. each; four blower fans, four engines and steel dumping cars for incinerator to be installed in this city.

Woodstock, Ont., Can.—Ratepayers will vote on \$85,000 city hall by-law.

Hanover, Ont., Can.—Tenders for erection of town hall will be called for by Foster & Clark, Architects, Owen Sound; \$13,000 available.

CONTRACTS AWARDED

Belmar, N. J.—Erecting the municipal building at 9th ave. and E st., to J. Allen Conklin, Newark, \$14,877.

Cincinnati, O.—Three comfort stations; general contract let to William Miller Sons Co.

Lorain, O.—Dredging Black River and filling city's property, to G. N. Breymann & Bros., Toledo, \$11,700 and \$5,250, respectively.—L. B. Johnston, Clerk Board of Public Service.

Beaumont, Tex.—Remodeling market house, to W. C. Whitney, \$4,200.

Lynchburg, Va.—Sprinkling streets, to Palace Livery Co., \$85 per month.

TOO LATE FOR CLASSIFICATION

STREET IMPROVEMENTS

Martinez, Cal.—Citizens will vote Aug. 2 on \$1,450,000 bonds for construction of 124 miles of first-class roads in Contra Costa county.

Millsboro, Del.—Council will order paving of all sidewalks.

Rome, Ga.—Citizens are considering election on \$30,000 bonds for street paving.—J. W. Hancock, Mayor.

Carterville, Ill.—Council has passed ordinance for construction of eighteen miles of concrete sidewalks; cost \$55,000.—L. E. Robertson, Mayor.

Decatur, Ill.—City is considering about two miles of street paving.

Evansville, Ind.—City Engineer August Pfaffin has prepared plans for 15,000 sq. yds. vitrified brick paving and 9,750 lin. ft. concrete curb and gutter in Governor st.

Indianapolis, Ind.—Bids received by Board of Public Works for permanent pavements in Daly and Maryland sts. have been rejected because samples of brick submitted by low bidders did not meet the test required by City Engineer; new bids

will be asked at once; Board of Public Works has ordered plans for permanent paving on alley near Arsenal st.

Fort Scott, Kan.—Council will consider extension of paving on National ave. in Belton.

Crowley, La.—Council has passed four cement sidewalk ordinances.

Detroit, Mich.—Council has ordered Department of Public Works to advertise for proposals for paving two alleys with vitrified brick, on concrete foundation; cost, \$4,810.—J. J. Haarer, Commissioner.

Edgmont, N. J.—Supervisors John B. Davis, J. H. Mendenhall and Samuel Pinkerton, of Edgmont township, have decided to borrow \$11,000 for macadamizing and rebuilding Edgmont Great Road from Midletown township line to Thornbury township line.

Jersey City, N. J.—The Board of Finance has authorized the expenditure of \$26,500 for street improvements: Bacot st. is to be repaved with asphalt, \$1,970.93; Bostwick ave. with Belgian block, \$5,938.96; Summit ave. is to be repaved with wooden blocks, \$2,260, and Jackson ave. with Belgian blocks, \$16,352.27.

Albany, N. Y.—Mayor Hanson has vetoed bill providing for paving of Vine st.

Niagara Falls, N. Y.—Council has decided to macadamize Buffalo ave. at cost of \$73,480.20, including intersections, \$2,175.—T. H. Hogan, City Clerk.

Troy, O.—City Engineer H. J. Walker has prepared plans for 3,000 sq. yds. of vitrified brick paving, with concrete curb and gutter, on Main st.—W. B. Freeman, Clerk Board of Public Service.

Zanesville, O.—Muskingum County Board of Commissioners has prepared plans for 1 mile of brick road, 16 ft. wide, with 5-in. concrete curb; cost \$10,000.—Jas. C. Wonders, Columbus, State Highway Commissioner.

Pawtucket, R. I.—Board of Aldermen has appropriated \$7,100 for improvement of Exchange st., \$3,600 for Knowles st. and \$3,300 for Arnold st.

Knoxville, Tenn.—Knox County Road Commission has appropriated \$3,500 for construction of sample road on Rutledge pike leading to Appalachian Exposition grounds.

Amarillo, Tex.—Bids will be received

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Ohio	Mansfield	July 2, noon	Grading and sewerage 6 streets	John Cahall, Dir. Pub. Serv.
Pennsylvania	Sewickley	July 5, 4 p.m.	Improving 5 sts. with vit. and fire brick block	M. M. Baker, Act. Engineer.
Massachusetts	Brookline	July 5, 4 p.m.	Grading 3 roads; bldg. sewers, drains, etc.	E. A. McEtrick, Town Secretary.
Pennsylvania	Ambridge	July 6, 8 p.m.	Paving Merchant st.	M. M. Allen, Borough Secretary.
Washington	Arlington	July 7, 8 p.m.	Improving Dist. No. 7	H. L. Huddle, City Clerk.
New Jersey	Red Bank	July 13, 11 a.m.	Improv. Sect. 2, Red Bank-Holmdel Road	G. K. Allen, County Engineer.
New Jersey	Elizabeth	July 15, 8 p.m.	Laying 4,644 sq. yds. brick pavement, 200 lin. ft. of curb, etc., on Madison ave.	N. K. Thompson, Street Comr.
SEWERAGE				
Ohio	Mansfield	July 2, noon	Bldg. 8-in. sanitary sewers in 4 streets	John Cahall, Dir. Pub. Serv.
Massachusetts	Brookline	July 5, 4 p.m.	Bldg. sewers and drains in 3 roads, grading, etc.	E. A. McEtrick, Town Secretary.
Arkansas	Texarkana	July 5	Bldg. sewer system, Dist. No. 8	J. C. King, Chm. Bd. Com.
Kansas	Hutchinson	July 5, 3 p.m.	Bldg. 9,728 ft. 6 to 18-in. tile sewer, 26 manholes, 4 flush tanks	Ed. Metz, City Clerk.
Iowa	Ft. Dodge	July 5, 5 p.m.	Bldg. sanitary sewer in alley, Block 9, M. and D. Addition	W. L. Tang, City Clerk.
Indiana	Beech Grove	July 5, 8 p.m.	Bldg. sewer on Main street	E. C. Martin, Town Clerk.
WATER SUPPLY				
Ohio	Dayton	July 9, noon	Furn. material and constructing addition to water supply	J. C. Ely, Dir. Pub. Serv.
BRIDGES				
Ohio	Barberton	July 22, 11 a.m.	Bldg. bridge over Wolf Creek ditch	C. L. Wirth, Clk. Co. Comrs.
MISCELLANEOUS				
Pennsylvania	Fountain Hill	July 6, 6 p.m.	Bldg. Municipal building and stable	W. L. Trumbore, Chm. Bldg. Com.
California	Oakland	July 20, 11 a.m.	Bldg. Livingston st. pier; \$25,000 bond	W. B. Fawcett, Sec'y Bd. Pub. Wks.

July 21, 3 p.m., for \$75,000 road and bridge bonds.—J. H. Patton, Mayor.

Dallas, Tex.—New bids will be asked for building Humbard Trail road; Elm st. will be improved.

Spokane, Wash.—Council has passed paving ordinances as follows: With asphalt Mission ave., \$99,265; with granitoid, Fourth ave., \$49,000; with concrete Eighth ave., \$18,287, and with concrete another portion of Eighth ave., \$6,375.

Milwaukee, Wis.—Council has passed ordinance carrying \$250,000 for streets and alley improvements.

CONTRACTS AWARDED

Los Angeles, Cal.—Constructing Hollywood Toluca road to A. C. St. John, \$39,048.50.

Santa Ana, Cal.—Furnishing one or more car loads of road oil to Union Oil Co., \$1.28 per bbl.

Denver, Col.—Work in new alley paving districts: District 25 to National Construction Co., \$15,506.70; District 26 to same firm, \$11,092.76; District 27 to Municipal Construction Co., \$17,160.90.

Hartford, Conn.—Building State highways as follows: Town of Seymour, 4,778 lin. ft. of gravel and telford, to Breaute & Davidson, Ansonia, 85c. per ft. for gravel and \$1.60 per ft. for telford; another section of telford and gravel in same town, to E. G. Pardee, Bethany, 88c. for gravel and \$1.53 for telford. Town of Plainville—1,485 ft. of macadam to Selectmen, acting for town, \$2 per ft. for telford and \$1.20 for macadam. Town of Ellington—6,880 ft. of gravel and telford to Thomas Kearney, of Meriden, 98c. per lin. ft. for gravel and \$1.72 for telford. Town of Kent—3,755 ft. of graded road to Frank Fabbri, Litchfield, \$12,305; and another section, 1,600 ft., to E. G. Pardee, Bethany, \$1,584. Town of Stratford—5,190 ft. of macadam, \$1.59 per lin. ft., to Bryan F. Mahan, New London.

Lexington, Ky.—Reconstructing Short st. to Carey & Reed; sheet asphalt, \$1.80 per sq. yd.; concrete base, \$5.75 per cu. yd.; curbing and guttering, 75c. per lin. ft.; excavation, 75c. per cu. yd.

Baker City, Ore.—Paving Auburn ave with bitulithic, to Warren Construction Co., \$2.25 per sq. yd.

Dallas, Tex.—Resurfacing Commerce st. with creosoted blocks, to J. C. Underwood, \$2.40 per sq. yd.

Beloit, Wis.—Furnishing brick to pave streets to Marion Buck Co., Marion, Ind.

BIDS RECEIVED

Augusta, Ga.—Paving of Ellis st. and Cotton and Compress alleys, Georgia Engineering Co., two blocks of Ellis st. with vit. brick \$1.95 per sq. ft.; Wm. F. Rowe, two alleys with Belgian blocks, \$2.37 per sq. yd.

Billings, Mont.—Paving in Dist. No. 53: Spokane Construction Co., \$3.41 per sq. yd. for blocks, for necessary steel used in reinforcing conc., 4 cts. per lb., and \$5 each for manholes reset; Bacheller & Powell, city, \$3.29½ per yd., steel for reinforcing 10 cts. per lb., and \$5 each for manholes reset; James Kennedy, Fargo, \$3.35 per yd. for blocks, steel for reinforcing 3¼ cts. per lb., and \$5 each for resetting manholes.

SEWERAGE

Sutter Creek, Cal.—Installation of sewer system is being considered.

Macomb, Ill.—Council has rejected all bids received for installation of sanitary

sewer system; Peter Simons, Quincy, lowest bidder, \$20,688.42.

Evansville, Ind.—City Engineer August Pfafflin has completed plans for 1,258 lin. ft. of vitrified brick sewer and 1,190 lin. ft. of vitrified pipe in Louisiana st.

Rahway, N. J.—Council has decided to build tile pipe sanitary sewer on Westfield ave.—C. H. Lambot, City Clerk.

Roselle Park, N. J.—Installation of sewer extension in Aldene section is being urged by Board of Education.

Bellefontaine, O.—Council has passed resolution constructing 15.41 miles of sanitary sewers; cost \$91,000.—Clair A. Inskeep, City Engineer.

Niles, O.—Council has instructed Board of Control to construct a sewer in Mill st.

Troy, O.—City is considering construction of vitrified pipe sewers this summer.—W. B. Freeman, Clerk Board of Public Service.

Philadelphia, Pa.—City will receive bids for sewage disposal plant to be installed with Torresdale filter plant.

Pawtucket, R. I.—Board of Aldermen has appropriated \$1,750 for sewer construction.

Amarillo, Tex.—Bids will be received July 21, 3 p.m., for \$40,000 sewer bonds.—J. H. Patton, Mayor.

Elm Grove, W. Va.—Residents of town of Park View are raising funds for installation of sewerage system; cost \$25,000; E. J. Miller has completed survey.

CONTRACT AWARDED

Salt Lake City, Utah.—Sewer extension No. 251 to A. A. Clark, \$44,119.62; No. 246 to Girkersen & Long, \$44.67 per ft.; No. 267 to J. D. Hanley, engineer's estimate, \$1,503. G. E. McGonagle, City Engineer.

WATER SUPPLY

Gadsden, Ala.—Council is discussing proposed change of water works site from present location to a point short distance further up Coosa River.

San José, Cal.—Bay Cities Water Company has announced that preliminary plans are being perfected for development of its watersheds at Mount Hamilton and the delivery into San Francisco, Alameda and Berkeley estimated 20,000,000 gallons of water daily; cost \$15,000,000.

St. Augustine, Fla.—Cost of improving water works system has been estimated at \$40,000.

Dalton, Ga.—Council has selected the H. S. Jaudon Engineering Co., Savannah, to prepare plans for improvements to water works system.

Decatur, Ill.—City is considering \$4,000 expenditure in laying water mains.

Holyoke, Mass.—City will issue \$150,000 bonds for storage reservoir at Fomer.—Pierre Bonvouloir, City Treasurer.

Kalamazoo, Mich.—City will sink three new wells at once.—W. F. Reed, superintendent of Water Works.

Batavia, N. Y.—Plans and specifications for proposed concrete dam of about 500 cu. yds. are about ready and bids will be received about July 26.—R. A. Wentworth, City Engineer; Fred New, Village Clerk.

Wetumka, Okla.—City will shortly install water and light plant.—B. Higgins, City Engineer.

Roseburg, Ore.—Applications for water and light franchises have been presented to Council by Douglas & Coos Power Company, composed of Seymour H. Bell, of Coos Bay; John Hewitt, of Tacoma, Wash.; F. B. Waite, of Sutherlin, and F. J.

Blakeley and W. W. Cardwell, of this city.

Boyerstown, Pa.—Borough has decided to dig well on its farm 40 ft. deeper, to increase water supply.

Catasauqua, Pa.—Citizens will soon vote on \$15,000 bonds for water improvements.

Nephi, Utah.—Citizens have voted \$15,000 bonds for water and light improvements.

Okanogan, Wash.—Town has voted \$6,000 bonds to improve water system.

CONTRACTS AWARDED

Spencerport, N. Y.—Installing water works to C. L. Lewes, Ilion, \$32,348.83; valves and hydrants to Ludlow Valve Co., Troy, \$1,549.35.—Morrison and Farrington, Inc., C. A. Bowman, Syracuse, Engineers.

Seattle, Wash.—Water mains, to Allain & Hull, on W. 59th st., \$9,878; to Wm. Kopta, on Klickitat ave., \$15,182, and to Jahn Construction Co., 2d st. and Highland Drive, on N. 51st st., at \$39,865.

LIGHTING AND POWER

Millsboro, Del.—Council is considering proposition to light town with electricity.

Dalton, Ga.—Council has selected the H. S. Jaudon Engineering Co., Savannah, to prepare plans for improvements to electric light plant.

White Castle, La.—J. E. Dunlap, President of the Dunlap Electric Company, Plaquemine, has proposed to light White Castle from plant at Plaquemine.

Wetumka, Okla.—City will shortly install light and water plant.—B. Higgins, City Engineer.

Roseburg, Ore.—Douglas & Coos Power Co. has asked consent for light franchises.

Nephi, Utah.—Citizens have voted \$15,000 bonds for electric light and water improvements.

Vancouver, B. C., Can.—Plans have been announced by Vancouver Power Company, a subsidiary organization of British Columbia Electric Railway Company, which contemplates development of 100,000 horsepower of electrical energy.

CONTRACTS AWARDED

Taylorville, Ill.—Lighting streets, Taylorville Gas & Electric Company, five years; contract provides for 26 arc lights of a nominal candlepower of 2,000 and 200 40-candle power Tungstens.

Boston, Mass.—Lighting streets, six months, to Rising Sun Street Lighting Co., \$23.60 per lamp; \$42,000 per year.

FIRE EQUIPMENT

Quincy, Ill.—Board of Fire Commissioners has decided to invite bids for furnishing automobile chemical apparatus.—Chief Schlag, Secretary of Commission.

Grand Rapids, Mich.—Erection of engine house on Godfrey ave. is being urged.

Billings, Mont.—Citizens have voted to issue bonds for erection of subfire station.

Jersey City, N. J.—Board of Finance has authorized \$25,000 bond issue for erection of engine house in Greenville.

Amarillo, Tex.—Bids will be received July 21, 3 p. m., for \$10,000 fire station bonds.—J. H. Patton, Mayor.

Ogden, Utah.—Council has authorized expenditure of \$10,000 for new apparatus for the fire department, consisting of a \$3,500 aerial ladder and \$2,700 chemical automobile, with a capacity of 35 gals., and sev-

PROPOSALS

UNDERGROUND CONDUIT CONSTRUCTION

New Britain, Conn.

Sealed proposals will be received by the Board of Public Works of the City of New Britain, Conn., at the office of the City Engineer, City Hall, New Britain, Conn., until 5 p. m. Tuesday, July 5, 1910, for the construction of about 21,000 feet of underground conduits on Main, East Main and Arch streets, New Britain, Conn., in accordance with plans and specifications.

Bids will state the price per foot of conduit complete with manholes. The Board of Public Works reserves the right to increase or decrease the number of duct feet by 10 per cent., after the contract is let, if it so desires.

All bids must be accompanied by a certified check for \$3,000, made payable to the Treasurer of the City of New Britain, Conn. Any bidder to whom contract has been awarded, refusing to sign the contract at the prices offered and furnish a surety bond for the faithful performance of the work, shall forfeit from his certified check a sum equal to the difference between his bid and that of the next lowest bidder. Plans and specifications can be examined at the office of the City Engineer.

The Board of Public Works reserves the right to reject any and all bids, and to accept any bid.

Dated at New Britain, Conn., June 28, 1910. Board of Public Works, per

(26) J. E. MOORE, President,

CAST IRON PIPE, HYDRANTS, GATES

Indianola, Ia.

Proposals will be received by City Clerk J. H. Clark at his office in Indianola, Ia., up to 7 o'clock p. m., July 7, 1910, at which time they will be opened and publicly disposed of. For the furnishing and placing according to the plans now on file with the clerk and engineer at their offices, of approximately 10,000 feet of (4") four-inch standard cast iron pipe, 15 Eddy hydrants and 17 Eddy gates.

Extra copies of plans may be had for \$5 each by applying to the engineer.

A. H. MCGILLILAND.

(26-1)

AERIAL EXTENSION LADDER

Office of the Commissioners of the District of Columbia

Washington, D. C.,

June 1st, 1910.

Sealed proposals will be received at this office until two o'clock, P. M., Friday, July 1, 1910, for installing a seventy-five foot aerial extension ladder and raising mechanism on one truck used in the Fire Department, D. C. Specifications and form of proposal may be obtained upon application to the Property Clerk, D. C., Room 316, District Building.

CUNO H. RUDOLPH,

JOHN A. JOHNSTON,

WILLIAM V. JUDSON,

Commissioners, D. C.

NOTICE TO CONTRACTORS

Missoula, Mont., June 13, 1910.

Notice is hereby given that the undersigned, at his office in the City Hall, Missoula, Montana, will receive sealed proposals until 5 o'clock P. M., July 11, 1910, for the furnishing of all labor and material for the construction of a system of sanitary sewers in the following special improvement districts: A, A1, A2, AB, AB1, AB2, AB3, AB4, AC, AC1, AC2, AC3, AC4, AC6, AD, AD1, AD2, AD3, AD4, AD5.

Approximate estimate:

Total length of sewers, 40,746 feet.

Excavation and refill, 940 cubic yards solid rock.

Excavation and refill, 4,700 cubic yards loose rock.

Excavation and refill, 88,250 cubic yards earth.

Excavation and refill, 93,890 cubic yards, total excavation and refill.

Embankment, 1,160 cubic yards.

D. S. vitrified pipe, 7,260 feet 8-inch.

D. S. vitrified pipe, 12,610 feet 9-inch.

D. S. vitrified pipe, 5,950 feet 10-inch.

D. S. vitrified pipe, 3,080 feet 12-inch.

D. S. vitrified pipe, 1,950 feet 15-inch.

D. S. vitrified pipe, 1,160 feet 18-inch.

D. S. vitrified pipe, 900 feet 20-inch.

D. S. vitrified pipe, 1,440 feet 24-inch.

D. S. vitrified pipe, 2,750 feet 27-inch.

Junctions, 440 8x6x2½ wyes.

Junctions, 675 9x6x2½ wyes.

Junctions, 300 10x6x2½ wyes.

Junctions, 140 12x6x2½ wyes.

Junctions, 40 15x6x2½ wyes.

Junctions, 60 18x6x2½ wyes.

Junctions, 30 20x6x2½ wyes.

Junctions, 70 24x6x2½ wyes.

Junctions, 35 27x6x3 wyes.

Pipe laying, 8,360 feet 8-inch.

Pipe laying, 14,610 feet 9-inch.

Pipe laying, 6,700 feet 10-inch.

Pipe laying, 3,425 feet 12-inch.

Pipe laying, 2,060 feet 15-inch.

Pipe laying, 1,300 feet 18-inch.

Pipe laying, 980 feet 20-inch.

Pipe laying, 1,621 feet 24-inch.

Pipe laying, 2,865 feet 27-inch.

Manholes, 5-foot diameter, 6; 6 to 10 feet high (brick or concrete).

Manholes, 5-foot diameter, 2; 10 to 14 feet high (brick or concrete).

Manholes, 5-foot diameter, 4; 14 to 19 feet high (brick or concrete).

Manholes, 4-foot diameter, 6; 6 to 10 feet high (brick or concrete).

Manholes, 4-foot diameter, 50; 10 to 14 feet high (brick or concrete).

Manholes, 4-foot diameter, 25; 14 to 19 feet high (brick or concrete).

Flush tanks, 4½-foot diameter, 6; 8 to 12 feet high (brick or concrete).

Flush tanks, 4½-foot diameter, 12; 12 to 16 feet high (brick or concrete).

Flush tanks combination, 1; 9 feet high (brick).

Open conduit (concrete), 520 feet, 27-inch diameter.

Concrete bulkhead, 1; at mouth of Main sewer.

Reinforced concrete bridge, 1; over irrigation ditch.

Lumber, 100,000 feet, board measure.

Plans, specifications and forms of proposal on file in the office of the sewer engineer. A complete set of said plans will be furnished to contractors requesting same upon deposit of the sum of \$20 as a guarantee that the said plans, profiles, specifications, etc., will be returned to the engineer's office in good condition.

The City Council reserves the right to reject any and all bids.

By order of the City Council this 11th day of June, 1910.

(Seal) W. A. LOGAN, City Clerk,

C. W. SWEARINGEN, Engineer.

(25-26)

GARBAGE CREMATORY

Lake Forest, Ill.

Bids will be received until July 1st by the City of Lake Forest for furnishing and erecting a garbage crematory, double furnace, 2 units, capacity 12 tons per 24 hours, together with a brick building for same and brick chimney of 150 ft. in height.

Bidders must furnish their own plans and specifications. The City of Lake Forest reserves the right to reject any or all bids. Address all communications to James F. King, City Clerk, Lake Forest, Ill.

CAST-IRON PIPE AND FIRE HYDRANTS

Muskogee, Okla.

Sealed proposals for 16,130 ft. (approximately 260 tons) 6-in. cast iron water pipe and 40 4-in. Corey steamer fire hydrants, delivered f.o.b. Muskogee, will be received by the City of Muskogee, Okla., until July 5, 1910. Check for \$500, certified by a Muskogee bank, payable to the City of Muskogee.

Address: CHAS. WHEELER, JR.,

City Clerk.

WANTED—Manager for paving block plant in East. Must be thoroughly experienced in burning, manufacturing and all details of the production of paving block. Give references and former employers. Address 26A, care Municipal Journal and Engineer.

(26-1)

FOR SALE

30 SECOND-HAND

Transits and Levels

Send for List

The Engineering Agency, Inc.

Seventeenth Year

Monadnock Block, Chicago 26-1

Fire Engine for Sale

No. 3 size standard. A bargain for city or village. Has been thoroughly tested out to entire satisfaction; guaranteed; can also be used in pumping out cesspools, etc. For full particulars and photo, address

BOX 95,

MIDDLESBORO, KY.

(25-26)

For Sale

One eight-ton tandem road-roller; can load it to weigh ten tons. It is in first-class condition, as good as new, a crackerjack of a roller, also three tool and coal boxes, all on wheels, and a tarvia tank all in good shape. We are going out of business, and the first (\$1300) thirteen hundred dollars takes it. Answer quick.

SMITH & FLEMING,

804 Ludington St.,

Escanaba, Mich.

(26)

BETTER GOODS FOR LESS MONEY



HEADQUARTERS
FOR
WATER WORKS
SPECIALTIES



SAMPLES
AND PRICES
FOR THE
ASKING



4900 TO 5100 SUPERIOR AVE., CLEVELAND O.

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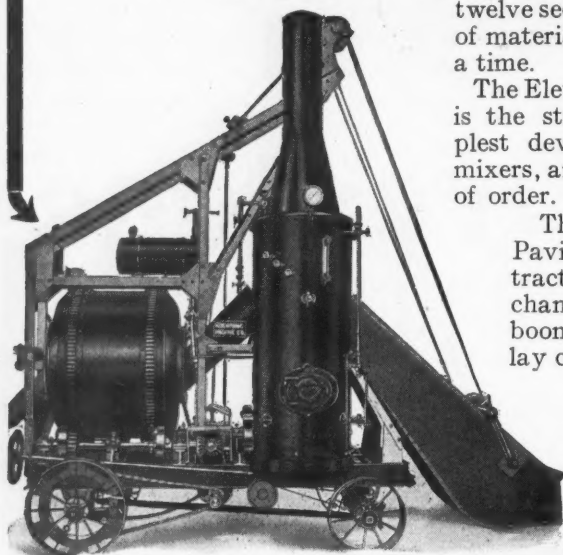
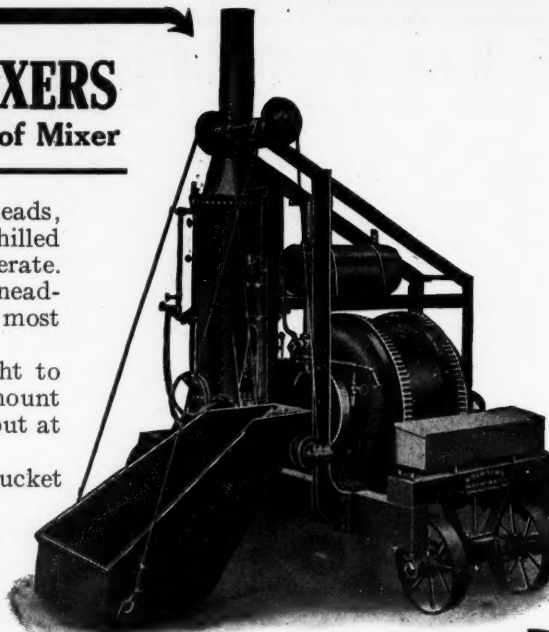
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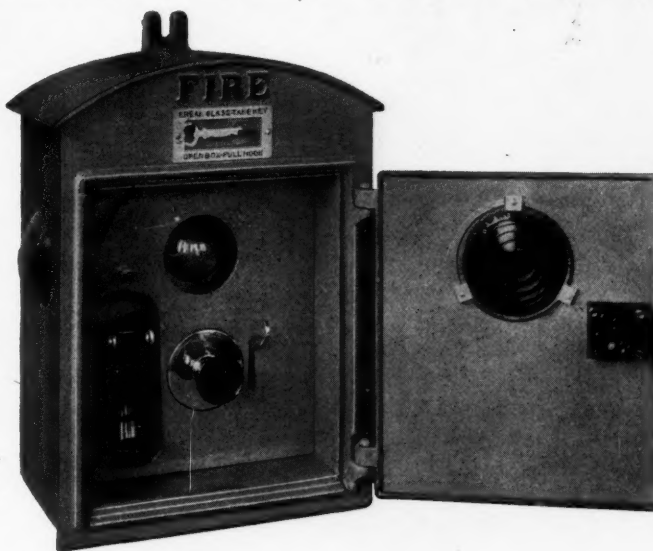
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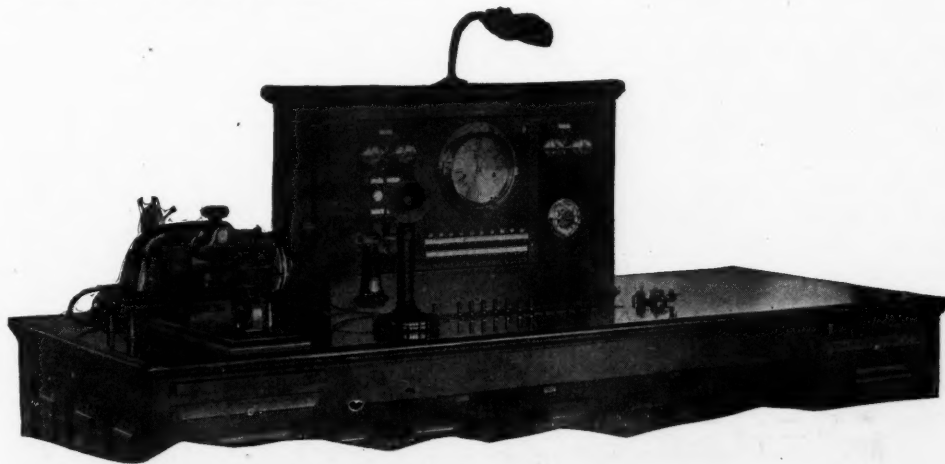
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Front View of Switchboard at Police Headquarters.



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The distinctive feature of this apparatus is the FLASHLITE idea. It enables police headquarters, at any time of the day or night, to reach any roundsman instantly. Simply throwing a little switch lights powerful red lamps on any beat or all over the city. This signals the officers to come to the telephone for instructions.

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The illustrations show the location of the public key compartment. The hook is pulled in the usual manner—nothing new or confusing. The police are also notified along with the fire department. The lamp lights when the alarm is sent in and is extinguished when the fire chief replaces the broken glass. Illuminated flash-light pilots fire department.

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Roundsmen's reports are automatically printed on a ticker tape at headquarters, by simply pulling the hook—the fire alarm circuit does not operate until the glass is broken. The telephone is not used in reporting. Constant attendance is not required at the headquarters' switchboard—the automatic registrations become indisputable records of each beat.

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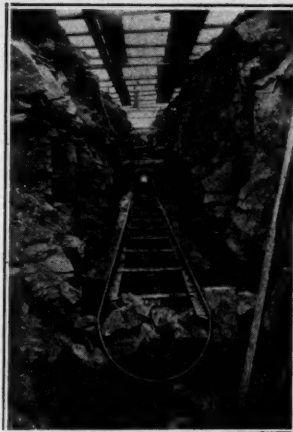
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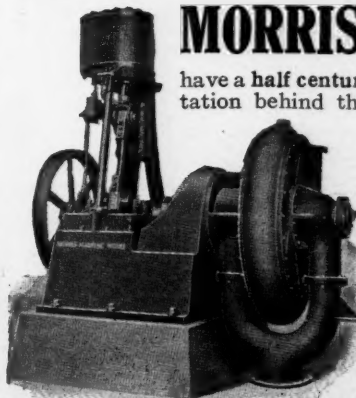
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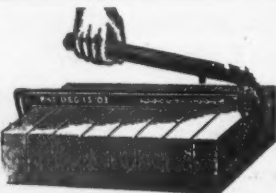
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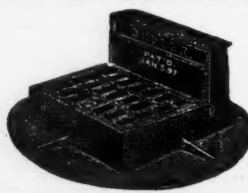
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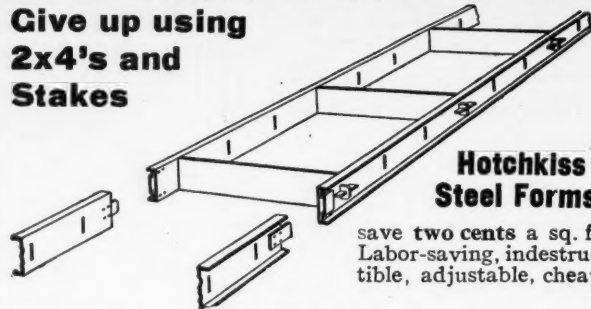
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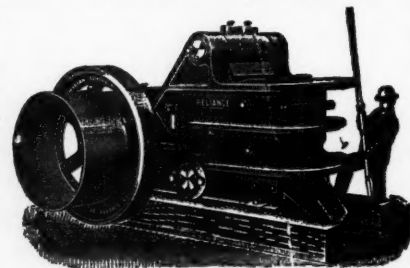
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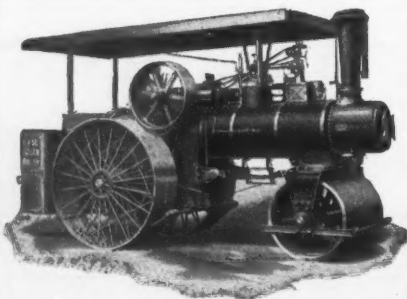
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Time price, 10-ton,
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Catalog M which gives
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Boxes.

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WATER TOWERS STAND PIPES

These are our specialties.
We build them of all practical
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POSITIVELY NEW AUTOMATIC
SIMPLE NON-INTERFERING PERFECT

Why use second best apparatus when you can get the best at no higher cost.

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Swivel Head Vise Handle

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Three Plants

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Clearfield Brick Mfg. Co.

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Registered U. S. Pat. Office

For Jointing Water Mains

Makes joints in water mains permanently tight. Requires no caulking whatever, and much less excavation than lead. Weight for weight, it does four times as much work as lead, at about half the cost.

Can be installed by common labor, and effects large savings in the cost per joint. Write for detailed information and prices.

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THAT WILL NEVER DECAY

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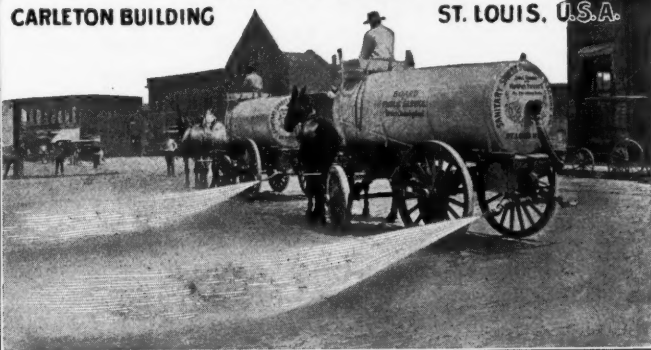
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"The Wadsworth" Macadam will do this and therefore is The Coming Roadway. By the use of Kentucky Natural Rock Asphalt, used cold, you get the system. Write for booklet.

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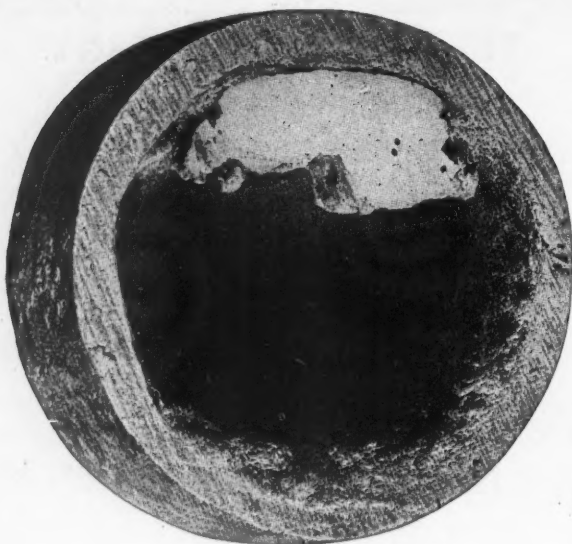
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Steel Sanitary Cart (Patented)

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In spite of the fact that it is of bituminous plus wood pulp composition

Orangeburg Fibre Conduit

does not burn. The illustration above is from a photograph of a section of 3-inch Orangeburg Fibre Conduit in which a very heavy short circuit had occurred. A short circuit which formed an arc so severe as to melt the lead and copper of the cables into a homogeneous mass.

And yet, although the heat would have been sufficiently intense to shatter a clay conduit, the wall of the conduit while charred, is not burned through. *And the fire did not spread.*

Tests by the New York Testing Laboratories have proved the resistance of Orangeburg Fibre Conduit to fire. The results are given in detail in The Conduit Book, a copy of which will be sent free on request.



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Will add to the efficiency of your pumps, reduce friction and water hammer. Will increase life of rubber valves more than 300 per cent. They quickly pay for cost of exchanging. Send for descriptive circular.

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Cast Iron Pipe and Fittings

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For Municipalities and Private Plants

The Gamewell Auxiliary Systems of Fire Alarms

FOR THE INTERIOR OF BUILDINGS

The operation of which operates the nearest street fire alarm box, thus enabling parties to call the Fire Department directly from a building, thereby saving valuable time.

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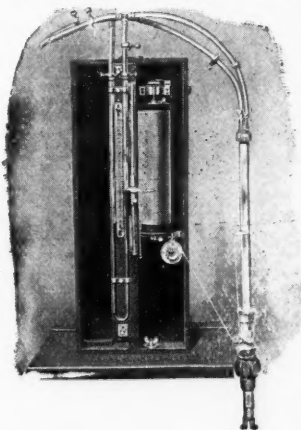
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Accurate, Portable, Economical

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Waste
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Has
Located
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Cities
Many
Million
Gallons
Daily
Waste

Will accurately measure and record the flow of water in a pipe of any size from 4 inches to 16 feet in diameter under any pressure. All you need is a one-inch tap.

Slip Indicators for Pumps.

Portable Test Pitometers for short tests with manual recorder.

Photo-Recording Pitometers with new prism attachment by which the highest accuracy is attained.

Write for Information.

The Pitometer Company, 222 Broadway, New York

WITH TWO MEN OR TEN IT WORKS THE SAME

Stands Any Test



ANTHON, IA., March 24, 1910.

THE KNICKERBOCKER CO.,
Jackson, Mich.

GENTLEMEN:—

Enclosed find check in payment of No. 12 Coltrin Concrete Mixer shipped us. We have given it a five days' trial, part of the time with a force of ten men and part with only two men, and we wish to say in both cases it worked to our entire satisfaction.

Yours truly,

CO-OPERATIVE LUMBER CO.

If you want your concrete work to be a recommendation for you, let us send complete information about the

COLTRIN CONCRETE MIXER

THE KNICKERBOCKER CO., JACKSON, MICHIGAN



Strike It With a Hammer

If it rings, it's Vitri-
fied, and its use is a
GUARANTEE that
your sewer will be sweet and clean
and sanitary for all time.

Vitrified Salt-Glazed Sewer Pipe

is the only **SANITARY**, the only **PERMANENT**
material for sewers. It cannot become spongy
or soft. It will not disintegrate or wear away.

We should like to place in your hands a copy of "Sewer Facts,"
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Western Clay Products Publicity Bureau
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The MUNICIPAL JOURNAL AND ENGINEER

VOLUME XXVIII.
NUMBER 26

YEARLY, \$3
WEEKLY, 10 CENTS

NEW YORK, JUNE 29, 1910

WHEN ENGINEERS REPEATEDLY SPECIFY IT'S BECAUSE THEY KNOW

From Hundreds—yes Hundreds—of Engineers' opinions of "Pioneer" Filler Asphalt, here are just a few — and property owners (tax-payers) agree with Engineers

The City Engineer

of New Castle, Pa., says: "Used 'Pioneer' Filler Asphalt in 1907. Results satisfactory. City is considering use of same again on large amount of paving."

The City Engineer

of Champaign, Ill., says: "This city has used 'Pioneer' since 1906. Satisfactory in every respect, and will be specified for 15,000 sq. yds. of new brick pavement."

The City Engineer

of Holland, Mich., says: "Used 'Pioneer' four years ago on River Street. Will recommend it for our next brick pavement."

The City Engineer

of Flint, Mich., says: "Used 'Pioneer' Filler in 1904. Five years later bricks show no appreciable wear, and not a crack exists in the pavement. Contracts for 26,000 sq. yds. of brick pavement just awarded and 'Pioneer' Filler will be used."

The Assistant City Engineer

of Minneapolis, Minn., says: "Began the use of 'Pioneer' Filler in 1905, and have used it in about 95,000 sq. yds. of brick paving. It stays in place and reduces noise quite materially."

The City Engineer

of Conneaut, Ohio, says: "'Pioneer' Filler Asphalt has been used with success on six different streets of our city—and these are the best paved streets we have."

The City Engineer

of Painesville, Ohio, says: "Used 'Pioneer' on trial block of brick pavement in 1905. In 1907 paved two of our principal streets, using same Filler. Has given good satisfaction, and is in many ways superior to any other filler that has come under my notice."

The City Engineer

of El Reno, Okla., says: "We have approximately 38,000 sq. yds. of brick paving with 'Pioneer' Filler Asphalt that has been in two years and has given perfect satisfaction. I consider this the best filler on the market to-day for brick paving."

The City Engineer

of Columbus, Ohio, says: "'Pioneer' Filler has been used on approximately 60,000 sq. yds. of brick paving in this city during the last two years, and I believe same to be in first-class condition at this time and fully meeting my expectations."

The City Engineer

of Titusville, Pa., says: "We have used 'Pioneer' Filler with the best of success for three years. In temperature conditions varying from 32° below zero to 95° above, 'Pioneer' stays where it is put."

The City Engineer

of Kalamazoo, Mich., says: "We have used several different fillers in our brick pavements, but none proved as successful as 'Pioneer' in every respect, and our specifications now read 'Pioneer' Asphalt Filler or its equal."

Get Our Specifications

We are headquarters for *first quality* asphaltic materials, in the production of which we employ Utah Gilsonite, obtained from our own mines, and in addition to our Filler we call attention to "Pioneer" Refined Asphalt for sheet asphalt paving, "Pioneer" Road Asphalt, "Pioneer" Mineral Rubber Pipe Coating, and "Pioneer" Waterproofing Asphalt. "Pioneer" products have a record of fourteen years' successful use, having been specified by leading engineers (and used) for some of the most important work done in the United States. Specifications will be mailed on request.

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Barrett's PAVING PITCH



Granite Blocks on Broadway, at Leonard St., N. Y. Filled with Barrett's Paving Pitch

Why the Metropolitan Street Railway Co. Prefers Pitch Filler

The street railways of New York City are required to bear the expense of paving between and adjoining their tracks, and accordingly the Metropolitan Street Railway Co., which controls most of the surface lines in Manhattan, lays and controls more pavement than some cities. Accordingly, their testimony regarding their experience with Paving Pitch for filling the joints of block paving is highly valuable. Mr. W. T. Dougan, Engineer of Maintenance of Way in this Company, writes on March 17th, 1910, as follows:

"We have used pitch extensively since 1891. At times, thinking that the price charged for this material was too high, or that something else might give better results, we have tried other material, but in each instance have gone back to Paving Pitch as being the most economical. From our point of view cement grout cannot be considered because of the length of time that it requires to set, and also because of the difficulty in removing the blocks and the loss of practically each block removed when it is necessary to repair our track structure."

We have a booklet giving full particulars about Barrett's Paving Pitch and the experience of many engineers and municipal authorities with same. We will send it free on request to nearest office.

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Investigations made. Reports, plans and specifications drawn up on the financial, constructive and operative features of municipal-owned conduits. Systems built complete on cost-plus-percentage, cost-plus-fee, unit-price, or lump sum basis.

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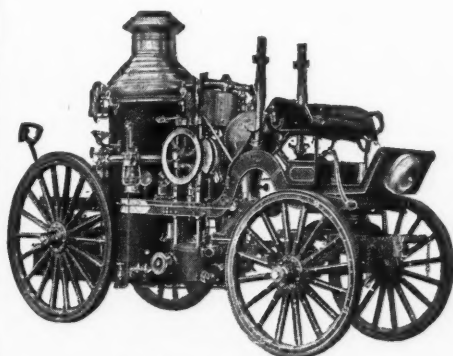
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Gentlemen:

Your third size engines have been given their official test and are now in service. Drafting water 12½' with two lines, 2½" hose, 1¼" smooth bore nozzles, they maintained a pressure of 75 pounds at the nozzle, thus delivering 644 gallons per minute.

With two 1¼" nozzles, they maintained a pressure of 60 pounds at the nozzle, or a delivery of 718 gallons per minute.

The revolutions were taken a number of times and were never below 400 and, at one time, ran up to 451.

The steam never went below 130 pounds at any time, and there was no vibration whatever—the engines running just as smooth as it is possible for an engine to run.

There was no heating whatever of any of the bearings or parts.

The engines are perfectly satisfactory in every respect and we are exceptionally well pleased with them.

Seattle, Wash., April 11, 1910.

Respectfully yours,
(Signed) JOHN H. BOYLE,
Chief.

Original letter on file in our office.

NOTT FIRE ENGINE CO., :: Minneapolis, U. S. A.

THIS ROAD WAS TREATED IN AUGUST, 1907, WITH ASPHALTOILENE



BLUE HILLS PARKWAY, MATTAPAN, BOSTON

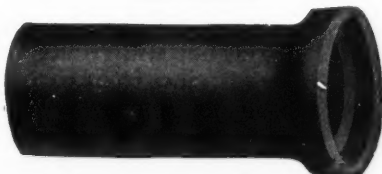
No other treatment and no repairs. The picture taken in November, 1909, shows its present condition.

As a binder and dust layer **Asphaltoilene** is unsurpassed for economy and efficiency. Let us send complete information. *Representatives wanted.*

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Salt Glazed



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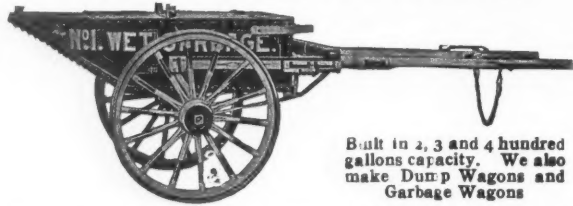
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AUTOMATIC SWILL CART

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For house, factory
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For large, rapidly
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Look at our sales record.

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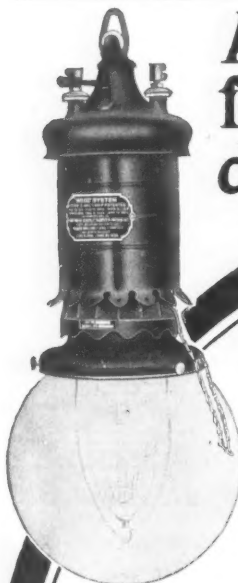
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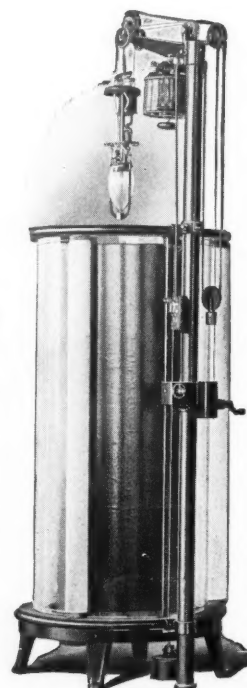
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